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Better Prospects Cheer Market

Slight Improvement in New Business Develops from Some Revival of Interest—Operations Are Practically Unchanged—June Ingot Output Lowest Since January, 1922—Unusually Large Inquiries for Line Pipe Pending—Pig Iron Prices Steadier

A MILD improvement in the steel market is continuing but it has yet to reach the point where it is having any appreciable influence upon total tonnage. The industry reflects various manifestations of a reviving interest which gives promise of being converted into business if it is maintained and the atmosphere is decidedly more cheerful than a few weeks ago. Some steel interests declare the general movement of the market is the best in 60 days.

Operations are holding substantially on an even keel with some mills still to resume after the holiday suspension. No great significance is attached to a strike of a number of coke workers in the Connellsville region against a reduction of wages by an independent operator.

Recent establishment of a 2.15c Pittsburgh price on plates, shapes and bars by the leading producer which has been followed by independents, has had the effect of steadying steel prices, temporarily at least. In sheets, however, the market still is weak.

Some important automobile interests have adopted and others have under advisement, revisions of production policies whereby in the future they will gage their outputs more closely to market demand as indicated by careful advance analysis. The plan of establishing arbitrary production schedules from year to year which now is freely followed in the industry, is to be discarded. It is believed greater flexibility of operations and a better control of production will result.

June Output Is Low

What June contributed to the severe reduction of production which the industry has sustained in the past 90 days is shown by the steel ingot figures for that period. On an average daily basis, ingot production in June fell 15.5 per cent further as compared with May bringing the total loss from the high point in March to 40.89 per cent. June put the country back to an annual production rate of 25,582,000 tons, the lowest point since January, 1922, which compares with an indicated rate of 45,590,000 tons in March. Steel ingot production for the first half of 1924 was 18,635,138 tons against 22,133,827 tons for the corresponding period in 1923.

An inquiry for 200,000 tons from a radiator interest is receiving much attention in a stagnant ore market. Building steel shows a falling off with awards the lowest in several months totaling 10,000 tons. New inquiry makes a similar showing.

Oil Tonnage Heavy

Demands from the oil industry remain one of the market's most active features. Tube mills are averaging 60 to 70 per cent production. A very heavy tonnage is represented by pending negotiations for oil pipe lines. The Standard Oil of New Jersey is taking bids on 85 miles of 6-inch and 90 miles of 8-inch. The Pan American Petroleum & Transport Co. is in the market for 27,000 tons, mostly 10-inch. The International Petroleum Co. is seeking 40,000 tons and another project for Colombia just placed with the Andean National Corp., New York, calls for about 500 miles, involving several hundred thousand tons.

Tank work still is active. The Standard Oil Co. of New York has placed 2700 tons for Buffalo and a number of other lots are pending. The Standard Oil Co. of New Jersey has distributed among several mills 200,000 boxes of tin plate for the export trade.

Pig iron is resisting further price declines with new business of somewhat smaller volume after the recent active buying movement. A seller here and there is beginning to try out slightly higher prices. Of interest is the application for an import pig iron rate from Mobile to Birmingham coupled with the report that pipe companies in that territory may bring in foreign iron.

The scrap market has undergone apparent strengthening in all districts with numerous advances of 50 cents to $1 per ton reported.

Easier prices in finished steel have been responsible this week for the lowering of IRON TRADE REVIEW composite of fourteen leading iron and steel products to $39.91. This brings the index back to the basis of August, 1923.

Roads Hold Back

The railroads continue to defer new buying or the carrying out of track improvements while their earnings slip. Specifications against rail contracts are withheld causing production to be curtailed. The Norfolk & Western, however, has put out a new inquiry for 50,000 tons. More attention is being given to car repairs.

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Value of Statistics Appreciated

AN EFFICIENT statistical service in a trade publication requires constant effort, and its importance to readers is far greater than indicated by the space occupied. Iron Trade Review has sought to make this one of its strongest departments. Periodically it presents tabulations of pig iron production by

Iron Trade Review at the British Foundry Exhibit. An Example of Its World-wide Editorial Activities. See Page 109.

daily average, by months and years, with the operators' stocks as far back as 1907; production of ingots and various finished forms; production in the principal European countries; American and foreign iron and steel exports and imports; domestic freight rates, export rail rates, etc. Price statistics, by classes, and in composites, and the general business statistics are regular features. Few publications give as complete a statistical picture as does Iron Trade Review.

Do You Know That—

The number of readers of IRON TRADE REVIEW has more than doubled in the last 10 years. True evidence of prestige!

Pig Iron Prices Show More Firmness—Moderate Size Lots Still Being Closed—Some Purchases Are Speculative

PITTSBURGH, July 8.—Pig iron activity has simmered down to a few small lots, and an occasional 1000 or 2000-ton sale. One nearby user closed for 1000 tons each of No. 2 and No. 2X at $19 and $19.50, valley, respectively. The General Fire Extinguisher Co., Warren, O., bought several hundred tons, paying $19.25 base, for No. 2 with 50-cent silicon differentials applying. The Pressed Steel Car Co.'s order for 2000 tons of car wheel malleable was lost to a producer quoting $19, valley. The Standard Sanitary Mfg. Co.'s purchase of 12,000 tons of southern iron, referred to last week, was placed at $18.50, Birmingham base, for No. 2. A broker is inquiring for 1500 tons of gray forge iron for delivery over the third quarter, for speculation. The United Engineering & Foundry Co. is closing for 1000 tons of low phosphorus iron, it is understood, at $24, Lebanon. Valley furnaces are quoting $27, minimum. The Wheeling Mold & Foundry Co. has not yet closed on 1000 tons of low phosphorus iron. It is understood to have bought bessemer iron from a nearby source at a figure equivalent to about $18.50, Johnstown, Pa., furnace. One valley bessemer producer is selling a few single carloads at $21, valley. Another disposed of one or two 1000-ton lots at $20, valley. The basic market is not clear, recent transactions having special features. Valley producers are quoting $19, valley. This figure is nominal. One inquiry of a speculative character calls for 5000 tons for delivery in the last quarter.

Textile Foundries Buy

Boston, July 8.—A fairly heavy tonnage of pig iron has been placed in New England. Many of the companies which bought previously had stated they were not in the market so that their action was something of a surprise. One textile machinery manufacturer closed for 4000 to 5000 tons, and another for about 1500 tons. A Connecticut hardware manufacturer bought 1000 tons. A stove manufacturer took 500 tons. Several general foundries in Massachusetts placed orders for smaller lots. An inquiry for 500 tons from western Massachusetts is understood to be before the trade. A New Hampshire consumer is in the market for 300 tons. Prices continue low but steady. Two eastern Pennsylvania furnaces are selling No. 2X (silicon 2.25-2.75) at $20, furnace, or $23.65 delivered. A few sales at $19.50, furnace, or $23.15, delivered also are reported. Buffalo furnaces are attempting to hold at $19, furnace, but at least one sale at $18.50 has been made during the week. A Rhode Island consumer bought some foreign iron, 2.00-3.00, silicon at $20.05, duty paid, Providence. Several other lots of foreign iron have been sold during the week and further tonnage is offered.

New Business Light

New York, July 8.—Sales of pig iron in this territory during the past week did not exceed 5000 tons and at least a part of this tonnage was for shipment outside of the district. New inquiry is quiet. The most important inquiries are from New England and involve 1000 tons of foundry for the last half and 1000 tons for the fourth quarter. Prices are unchanged. On Buffalo foundry the usual price is $19, with $18.50 base obtainable on an attractive tonnage. Buffalo malleable has sold at $19. Eastern foundry continues obtainable at $20 to $21, furnace, depending on the business. Requests to postpone shipments have been made by a number of melters in this territory, due to the usual midsummer lull. Some of these plants are taking advantage of the lull to make needed repairs or improvements.

A Connecticut foundry company is inquiring for 1000 tons for last half. The Westinghouse Electric & Mfg. Co.'s Springfield, Mass., plant, also wants 1000 tons for last half.

Buffalo Market Firmer

Buffalo, July 8.—Pig iron inquiry is estimated at 12,000 to 15,000 tons. The largest inquiry is one of 2000 tons from the Eastern Malleable Iron Co. There are several for 500 and 1000 tons. Most interest seems to be in the higher silicon foundry grades. One local furnace is out of the market for the present on all but No. 2 plain. Prices are firmer, nothing having been offered below $19 recently. It is reported that iron from the yard of a furnace east of Buffalo is offered for delivery in New England at prices which Buffalo furnaces will not meet. Because of a freight differential this iron can be sold for New England delivery at a price which would force Buffalo to quote $18 or less. Buffalo bookings last week exceeded 12,000 tons. No. 2 plain was sold at $19, No. 2X at $19 to $19.50 and No. 1X at $19.50 to $20.50. Basic can be had at $19 and malleable at $19 to $19.50. Rogers, Brown & Co. will bank a stack this week, leaving one in blast. The Donner Steel Co. will light a stack about Aug. 10 but may bank one furnace about the same time. The Bethlehem Steel Corp. kept two furnaces here in operation over the Fourth and plans to continue at this rate for the present. The Wickwire Steel Co. has one stack in blast and one banked. The Charlotte, N. Y., furnace is down with no signs of resumption.

Railroad Closes Tonnage

Philadelphia, July 8.—The Pennsylvania railroad is reported to have closed for 5000 tons or more of foundry iron for third quarter. The market generally is quiet. New inquiry includes one lot of 1000 tons of foundry iron and several smaller tonnages. Foundry iron is $20.50, base eastern furnace, but $20 is obtainable on attractive tonnage. The American Steel Foundries has bought 500 to 1000 tons of low phosphorus iron low in copper. Several hundred tons of copper-free low phosphorus iron was sold to other consumers.

Sales Good; Prices More Stable

Cleveland, July 8.—Following the heavy sales of pig iron in June by furnace interests with headquarters here, July starts out with these same interests booking a fairly good volume of new business. The sales so far this month aggregate 35,000 tons, of which slightly more than 5000 tons is represented in orders placed by Cleveland melters. The market is less active than it was two weeks ago, but makers believe that considerably more iron remains to be bought. A firmer tendency is shown by prices. There have been no further recessions in the past week, and $19, valley, and lake furnace, and $20, Cleveland furnace for local delivery, are the figures generally prevailing. A lake furnace refused a round tonnage offered at slightly less than $19, while a Cleveland interest booked a good tonnage for outside delivery at $19, valley. Two local fur-

nace interests have taken over 5000 tons in the last few days at $20, furnace, for delivery in the 50-cent switching area. This business, however, was in relatively small lots, the largest amounting to 1200 tons. A lake furnace that has a good backlog for the third quarter is understood to be considering raising its price to $19.50. A merchant interest with furnaces in various localities has 80 per cent of its July output covered. The large buyers have closed for their third quarter requirements now in sight, while the smaller and medium size plants are more active in the market. One maker this week is figuring on over 20,000 tons represented by these that a considerable part of the heavy buying recently was speculative. The spot market has greatly improved, and foundries now are taking in small tonnages where months ago they refused iron at any price. The Zenith furnace went out last week, and the Federal this week, leaving one Mayville stack making merchant iron in this district. Stocks at furnaces are large. A range of $19.50 to $20 still represents the market. Michigan melter is inquiring for 1000 tons of malleable and another Michigan user wants 600 tons of foundry iron. Sales and inquiry still are good but decidedly under the peak of the recent buying movement. Charcoal iron is unchanged at $26, furnace. nace interests here assert that the $18.50 price is positively the lowest and one statement is that $19 is the minimum right now. Surplus iron on yards in this state has attained larger proportions. Production in June in Alabama, a decided drop from the May figure, will not be bettered during July. The prospects are that there will be further curtailment.

Buys 11,000 Tons

Cincinnati, July 8.—Purchase of 11,000 tons of southern iron by the Standard Sanitary Co., for its Louisville, Ky., plant was the outstanding feature of the pig iron market in this district the past week. The business

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	July 9, 1924	June, 1924	Apr., 1924	July, 1923
PIG IRON				
Bessemer, valley del., Pitts.....	$21.76	23.26	24.61	28.51
Basic, valley	19.00	20.00	21.70	25.15
Basic, eastern del., eastern Pa.	20.50	20.60	21.35	27.25
*No. 2 foundry, del. Pitts.....	20.76	21.26	23.51	27.36
No. 2 foundry, Chicago.....	19.50	21.40	24.40	28.00
*Southern No. 2, Birmingham..	18.50	20.00	22.20	25.00
*Southern Ohio, No. 2, Ironton	19.50	20.25	23.00	26.50
**No. 2X, Virginia furnace....	24.50	25.50	25.50	27.25
**No. 2X, eastern, del. Phila....	21.76	21.76	23.73	28.00
Malleable, valley	19.00	19.75	22.20	25.50
Malleable, Chicago	19.50	21.40	24.40	28.00
Lake Superior charcoal, Chicago	29.04	29.04	29.04	36.60
Gray forge, val., del. Pittsburgh	20.26	20.76	23.51	27.01
Ferromanganese, del., Pitts.	112.29	112.29	112.29	122.79
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	40.00	40.00	42.10	42.50
Sheet bars, open-hearth, Pitts....	40.00	40.00	42.10	42.50
Billets, bessemer, Pittsburgh....	38.00	38.00	40.00	42.50
Billets, open-hearth, Pittsburgh..	38.00	38.00	40.00	42.50
FINISHED MATERIAL				
Steel bars, Pittsburgh.....	2.15	2.20	2.30	2.40
Steel bars, Chicago	2.25	2.25	2.41	2.50
Steel bars, Philadelphia.....	2.47	2.52	2.57	2.72

	July 9, 1924	June, 1924	Apr., 1924	July, 1923
FINISHED MATERIAL (Continued)				
Iron bars, Philadelphia	$2.42	2.42	2.47	2.72
Iron bars, Chicago mills.....	2.20	2.24	2.36	2.55
Beams, Pittsburgh	2.15	2.20	2.35	2.50
Beams, Philadelphia	2.42	2.42	2.57	2.82
Beams, Chicago	2.25	2.38	2.51	2.60
Tank plates, Pittsburgh	2.15	2.15	2.35	2.50
Tank plates, Philadelphia.....	2.22	2.27	2.52	2.82
Tank plates, Chicago.....	2.25	2.38	2.51	2.60
Sheets, blk., No. 28, Pittsburgh	3.60	3.65	3.70	3.85
Sheets, blue anl., No. 10, Pitts.	2.75	2.80	2.80	3.00
Sheets, galv., No. 28, Pittsburgh	4.70	4.80	4.85	5.00
Wire nails, Pittsburgh.....	2.90	2.90	3.00	3.00
COKE				
Connellsville furnace, ovens	2.75	3.15	3.55	4.35
Connellsville foundry, ovens	4.00	4.15	4.60	5.15
OLD MATERIAL				
Heavy melting steel, Pittsburgh	16.50	16.25	16.60	18.25
Heavy melting steel, eastern Pa.	15.50	15.65	15.35	17.25
Heavy melting steel, Chicago ..	14.50	13.55	14.65	17.10
No. 1 wrought, eastern Pa.....	17.75	17.75	18.40	18.85
No. 1 wrought, Chicago.....	14.50	13.25	14.80	16.60
Rails for rolling, Chicago.....	15.00	14.55	17.10	18.40

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago.

July 9, 1924	July 2, 1924	June, 1924	Apr., 1924	July, 1923	July, 1914
$39.91	$40.13	$40.61	$42.33	$45.39	$22.17

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

purchasers. A Cleveland melter is in the market for 500 tons of No. 2 foundry. Some negotiations are under way for moderate size lots of basic; none was closed in the past week.

The McKinney Steel Co. is about to blow in one stack at Cleveland that has been down for improvement, and at the same time blow out another for repairs.

Prices Are Steadier

Chicago, July 8.—Northern malleable and foundry iron prices are displaying more firmness. Iron for third quarter still is available at $19.50 furnace, but furnaces evidently are trying to make $20 the bottom. Carlots are commanding $20, and one seller is refusing business under $20 for the last quarter. With the foundry melt not increasing appreciably, it is becoming apparent It is understood no reduction in the price of charcoal, now is contemplated.

Sales of southern iron are light. The Birmingham minimum is $18.

Buying Is Not Extensive

Birmingham, Ala., July 7.—While there was considerable buying of pig iron when quotations dropped to $18.50, it appears that consumers did not cover all their requirements. Some melters believe the bottom has not been reached, and are buying hand-to-mouth. One or two of the smaller furnace interests are accepting business at present prices with caution. The aggregate tonnage has not been extensive, some of the larger foundries and machine shops reporting that they have not purchased any large amount of iron. The heavier melters are said to be considering some buying. Furwas distributed among four furnace interests, Sloss-Sheffield, Pioneer, Woodward and Tuscaloosa. The United States Malleable Co., Toledo, O., is reported to have placed an order with a Cincinnati melter for 1500 tons of malleable iron, while a Cincinnati melter bought 1200 tons of foundry iron from a southern Ohio furnace interest for third quarter delivery. A sale of 300 tons of foundry iron to the Houston, Stanwood & Gamble Co., Covington, Ky., also is noted. Aside from these transactions, sellers reported a fair volume of orders involving carlots of foundry, charcoal, bessemer and silvery irons for prompt shipment. Sentiment is somewhat improved. One large seller of northern iron finds July business so far at a much faster pace than the last part of June. Stocks

(Concluded on Page 74)

Iron and Steel Prices

SCRAP PRICES, PAGE 128; WAREHOUSE, PAGE 120; ORE, NUTS, BOLTS AND RIVETS AND PIPE PRICES, PAGE 124

Pig Iron

Prices per gross ton

Bessemer, valley	$20.00 to 21.00
Bessemer, Pittsburgh	21.76 to 22.76
Basic, valley	19.00
Basic, Pittsburgh	20.76
Basic, Buffalo	19.00
Basic, del., eastern Pa.	20.50 to 20.75
Malleable, valley	19.00
Malleable, Pittsburgh	20.76
Malleable, Cleveland, del.	20.50
Malleable, Chicago	19.50 to 20.00
Malleable, Buffalo	19.00 to 20.00
Malleable, del., eastern Pa.	21.25 to 22.25

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry	1.75 to 2.25
No. 2X East'n and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del., Phila.	21.76 to 22.76
No. 1X, Buffalo	19.50 to 20.00
No. 1 foundry, Chicago	20.00 to 20.50
No. 2 foundry, valley	19.00 to 19.25
No. 2 foundry, Pittsburgh	20.76 to 21.01
No. 2 foundry, Buffalo	18.50 to 19.00
No. 2 foundry, Chicago	19.50 to 20.00
No. 2 foundry, Granite City	22.50 to 23.00
No. 2 foundry, Ironton fur.	19.00 to 19.50
No. 2 foundry, Cleveland, del.	20.50
No. 2 foundry, del., Phila.	20.76 to 21.76
No. 2 foundry, N. J. tidewater	21.39 to 22.39
No. 2X, eastern del., Phila.	21.26 to 22.26
No. 2X, east. N. J. tidewater	21.89 to 22.89
No. 2X, eastern del., Boston	23.65 to 24.15
No. 2X, foundry, Buffalo fur.	19.00 to 20.00
No. 2X, Buffalo, del. Boston	23.91 to 24.41
No. 2 southern, Birmingham	18.00 to 19.00
No. 2 southern, Cincinnati	22.05 to 23.05
No. 2 southern, Philadelphia	25.80 to 26.80
No. 2 southern, Chicago	24.01 to 25.01
No. 2 southern Cleveland	24.01 to 25.01
No. 2 southern, Boston (rail and water)	24.91 to 25.91
No. 2 southern, St. Louis	23.17 to 24.17
No. 2X, Virginia furnace	24.50
No. 2X, Virginia, Phila.	29.17
No. 2X, Virginia, Jersey City	30.04
No. 2X, Virginia, Boston	30.41
Gray forge, eastern Pa.	20.50 to 21.50
Gray forge, val. del., Pitts.	20.26
Low phos., standard, valley	27.00 to 28.00
Low phos., standard, Phila.	nominal
Low phos., Lebanon, furnace	24.00 to 24.50
†Low phos., English, Phila.	27.26 to 27.76
Charcoal, Birmingham	31.00
Charcoal, Superior Chicago	29.04

Silvery Iron
Jackson County, Ohio, furnace

7 to 8 per cent	29.00
8 to 9 per cent	30.50
9 to 10 per cent	32.50
10 to 11 per cent	34.50
11 to 12 per cent	37.00
12 per cent	39.50

Bessemer Ferrosilicon
Jackson County, Ohio, furnnace

10 to 11 per cent	39.50
11 to 12 per cent	42.00
12 to 13 per cent	44.50

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	107.00 to 107.50
Ferromanganese delivered Pittsburgh	111.79 to 112.29
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	34.00 to 36.00
†Spiegeleisen, English, delivered tidewater	33.00 to 34.00
Ferrosilicon, 50 per cent contract freight allowed	72.00 to 75.00
Ferrotungsten standard, cents per pound contained	88.00 to 93.00
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	10.00 to 10.25
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	$3.50 to $3.75
Ferro carbon-titanium, carloads, producer's plant, per net ton	$200.00

†Duty paid.

Coke

Beehive, Ovens

Prices per net ton

Connellsville furnace	$2.75 to 3.00
Connellsville foundry	4.00 to 5.00
New river foundry	8.50 to 9.00
Wise county furnace	3.75 to 4.50
Wise county foundry	4.00 to 5.00
Alabama furnace	5.00 to 5.50
Alabama foundry	5.50 to 5.75

By-Product

Foundry, Newark, N. J., del.	$10.41
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.00
Foundry, St. Louis	12.00
Foundry, Granite City, Ill.	9.00 to 9.50
Foundry, Alabama	5.50 to 5.75

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Open-hearth, Pittsburgh	$38.00
Open-hearth, Youngstown	38.00
Open-hearth, Philadelphia	43.17
Open-hearth, Chicago	35.00
Bessemer, Pittsburgh	38.00
Bessemer, Youngstown	38.00
Forging, Pittsburgh	43.00
Forging, Philadelphia	45.17 to 48.17

SHEET BARS

Open-hearth, Pittsburgh	$40.00
Open-hearth, Youngstown	40.00
Bessemer, Pittsburgh	40.00
Bessemer, Youngstown	40.00

SLABS

Pittsburgh	38.00
Youngstown	38.00

WIRE RODS

¼-inch and finer

Wire rods, Pittsburgh	$48.00

Standard extras, $2.50 per ton over @-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skedp, Pittsburgh	2.15c to 2.20c
Universal skedp, Pittsburgh	2.15c to 2.20c
Sheared skelp, Pittsburgh	2.15c to 2.20c

Shapes, Plates and Bars

Prices per pound

Structural shapes, Pittsburgh	2.15c to 2.20c
Structural shapes, Phila.	2.22c to 2.47c
Structural shapes, New York	2.24c to 2.49c
Structural shapes, Chicago	2.25c to 2.35c
Structural shapes, Birmingham	2.30c to 2.35c
Tank plates, Pittsburgh	2.15c to 2.20c
Tank plates, Philadelphia	2.12c to 2.32c
Tank plates, New York	2.14c to 2.34c
Tan plates, Chicago	2.25c to 2.35c
Tank plates, Birmingham	2.30c to 2.35c
Bars, soft steel, Pittsburgh	2.15c to 2.20c
Bars for cold finishing, Pitts.	2.30c to 2.35c
Bars, soft steel, Philadelphia	2.47c
Bars, soft steel New York	2.49c
Bars, soft steel, Chicago	2.25c
Bars, soft steel, Birmingham	2.30c to 2.35c
Bars, refined iron, Pittsburgh	3.00c to 4.75c
Bars, rail steel, Chicago	2.10c to 2.13c
Bars, rail steel, mill	2.10c to 2.20c
Reinforcing bars, billet, Pitts.	2.15c to 2.20c
Bar iron, common, Phila.	2.42c
Bar iron, common, New York	2.49c to 2.59c
Bar iron, common, Chicago	2.20c
Bars, forging quality, Pitts.	2.40c to 2.45c

Hoops, Bands, Strip

Prices per pound

Hoops, Ptisburgh, under 5 in	2.60c to 2.75c
Hoops, Pittsburgh, 20 gage, under 1 in.	2.90c to 3.00c
Bands, Pittsburgh	2.60c to 2.75c
Hot rolled strip steel, Pittsburgh stamping quality	2.50c to 2.75c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh	4.50c

Cold Finished Steel

Prices per pound

Cold finished steel bars, Pittsburgh base, carloads	2.90c
Cold-finished steel bars, base Pittsburgh, less carloads	3.00c to 3.25c
Steel shafting, Pittsburgh	2.90c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	27.00 to 32.50
Relaying rails, Pittsburgh	25.00 to 28.00
Light rails, 25 to 45, mill	1.90c to 2.00c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pitts.	2.80c to 2.90c
Spikes, small railroad, 7/16-in. and smaller	3.25c to 3.40c
Spikes, boat and barge, Pitts.	3.25c to 3.46c
Spikes, railroad, Chicago	3.10c
Track bolts, Pitts. standard	3.75c to 4.00c
Track bolts, Pitts., small	4.50c to 4.75c
Track bolts, Chicago	4.10c
Tie plates, Pittsburgh	2.50c to 2.55c
Ties plates, Chicago	2.60c

Spike, tie plate and truck bolt prices for carlots.

Wire Products

To Jobbers in Carloads

Prices per pound

Wire nails, Pittsburgh	2.90c
Galv'd nails, 1-inch and over	5.15c
Plain wire, Pittsburgh	2.65c
Annealed wire, Pittsburgh	2.80c
Galvanized wire, No. 9 gage, Pittsburgh	3.25c
Barbed wire, painted, Pitts.	3.35c
Barbed wire galv., Pitts.	3.70c
Polished staples, Pittsburgh	3.35c
Galvanized staples, Pittsburgh	3.70c
Coated nails, count keg Pittsburgh	2.30c
Woven wire fencing (retailers)	65 off
Woven wire fencing (jobbers)	67½ off

Sheets

SHEET MILL BLACK

Prices per pound

No. 28, open-hearth, Pitts.	3.50c to 3.65c
No. 28, bessemer, Pitts.	3.50c to 3.65c
No. 28, open-hearth, Phila.	3.82c to 3.97c
No. 28, open-hearth, Chicago	4.09c to 4.19c

TIN MILL, BLACK

No. 28, open-hearth, Pitts.	3.75c

GALVANIZED

No. 28, open-hearth, Pitts.	4.70c to 4.80c
No. 28, bessemer, Pittsburgh	4.70c to 4.80c
No. 28, open-hearth, Phila.	4.97c to 5.12c
No. 28 open-hearth, Chicago	5.19c to 5.34c

BLUE ANNEALED

No. 10, open hearth, Pitts.	2.75c to 2.80c
No. 10, bessemer, Pittsburgh	2.75c to 2.80c
No. 10, open-hearth, Phila.	3.02c to 3.12c
No. 10, open-hearth, Chicago	3.34c

AUTOMOBILE SHEETS

No. 22, Pittsburgh	5.10c

Tin Plate

Prices per 100-pound box

Tin plate, coke base, Pitts.	$5.50

Iron and Steel Pipe

Base Discounts Pittsburgh to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3½ to 3¾-inch	35

Chain, Piling, Cut Nails

Prices per pound

Chain, 1-in. proof coil, Pitts	6.00c to 6.25c
Sheet piling base, Pittsburgh	2.20c to 2.25c
Cotton ties, bundle 45 lbs. Pittsburgh, delivered prices on application.	
Cut nails, Pittsburgh	3.00c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$58.20
Six-inch and over, Chicago	52.20 to 54.20
Four-inch, Birmingham	51.00 to 52.00
Six-inch and over Birmingham	47.00 to 48.00
Four-inch, New York	64.60 to 65.60
Six-inch and over, New York	59.60 to 60.60

Standard fittings, Birmingham, base..$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B.

Scrap Shows Better Tone

Dealers Pay Higher Prices Than Consumers and Refuse To Sell Large Tonnages Into Future—Some Sales Occasionally

SCRAP PRICES, PAGE 128

Chicago, July 8.—Iron and steel scrap prices are advanced again, still largely upon sentiment but also upon a growing interest on the part of consumers. One steel works has placed about 10,000 tons of heavy melting steel at $15. Bundled sheets have been bought on the basis of $12.50. Users of scrap who a month ago were not interested in scrap at any price now can be induced to take in small lots. Steel foundries have been buying some railroad specialties. In some instances dealers are offering more for scrap than consumers. Heavy melting steel is on a basis of $14.50 to $15, borings $10.50 to $11, wrought $14.50 to $15, and rerolling rails $15 to $15.50.

Machine Turnings Improve

Boston, July 8.—Signs of slightly better trading in the iron and steel scrap market in New England continue to develop. The General Electric Co. at East Lynn, Mass., sold several hundred tons of turnings at $8.62 on cars shipping point and several hundred tons of punchings at about $9.20 shipping point. The Boston Elevated railroad received bids on about 900 tons of steel girder rails and rail castings and while the figures are reported high, no award has been made. Eastern Pennsylvania mills have had to pay a minimum of $13.50 per gross ton, delivered, for machine shop turnings, which means that dealers at Boston can pay $8.50 for this grade of scrap or approximately 50 cents above the price of a week ago. Wrought pipe has advanced from $10 to $10.50 and No. 1 railroad wrought has been advanced by one dealer from $13 to $15. Heavy melting steel is unchanged but better inquiry is now before the trade than in many weeks.

Old Contracts Uphold Market

New York, July 8.—Consuming demand for scrap still is confined to small scattered tonnages. Prices are steady for the most part, a further advance in wrought pipe being among the few changes of consequence. This grade is now holding at $11.25 to $11.75, New York, and is being bought in fair quantities for shipment to Harrisburg, Pa., and Lebanon, Pa., at $15, delivered. Heavy cast is going to the former point at $16, delivered, and skeleton steel at $12.50. Trading in cast scrap generally is exceedingly slow. Heavy melting steel is being bought on back contracts for shipment to Bethlehem, Pa., at $14.50 and for Conshohocken, Pa., at $15.50.

Large Sale in East

Philadelphia, July 8.—An eastern mill has bought 35,000 tons of heavy melting steel scrap. Aside from this transaction trading has been confined to scattered small lots.

Detroit Situation Is Better

Detroit, July 8.—The iron and steel scrap market shows some strength with prices averaging 50 cents higher in most open hearth grades. Some isolated sales of heavy melting steel at higher prices have been reported, but dealers say this is not indicative of the trade. Movement continues small. Recent sales were at slightly higher prices.

Buying Is Speculative

Cleveland, July 8.—Activity in iron and steel scrap in this territory is almost entirely lacking. Dealers are taking some tonnage on a speculative basis but consumers are uninterested, some being well covered. Prices for the most part are unchanged, machine shop turnings alone showing strength, advancing 50 cents a ton to $12.75 to $13.25.

Firmer Basis at Pittsburgh

Pittsburgh, July 8.—While heavy melting steel scrap still is quoted at $16.50 to $17, the base of last sales or the levels which dealers still are offered, it is becoming more and more difficult to find it at those prices. Some consumers have not yet revised their bids upward from that range and the Monessen, Pa., user still will buy at that figure if the scrap is available. This tight situation is brought about mainly because dealers selling short up to $18.75 per ton at Canton and Massillon, O., each consumer taking 20,000 tons, are now bidding $18.25 or more, delivered those points, which naturally is taking all the available scrap in those directions, including that offered by the Pennsylvania railroad on its recent list. Just what the successful bids were on that list has not been announced, although it is understood that around $18.50, Massillon or Canton, was paid on the heavy melting steel and around $19.75 on specialties. Specialties here are still quoted at $19.50 to $20, steel foundries paying those prices on small quantities recently. After being down to $13 to $13.50, cast iron borings have advanced again to $13.50 to $14 on the basis of bids offered by consumers. Spasmodic buying of small tonnages of various grades keeps up from day to day.

Stronger Tone at Buffalo

Buffalo, July 8.—A decidedly stronger tone is apparent in the scrap market than it showed during the greater part of June. Dealers report difficulty in getting material at prices which will enable them to sell to consumers at prevailing levels. Heavy demand from outside consumers has taken a considerable tonnage of heavy melting steel and other grades out of the district and dealers have not been able to hold stocks at former proportions. Massillon is the most recent addition to bidders for heavy melting steel, offering $18.50, according to reports. This bid has resulted in an advance in the Buffalo price of heavy melting steel to $15 to $15.50, according to dealers, who insist no real tonnage could be purchased now for less than this price, although small sales have been made within the past ten days as low as $14.50. Hydraulic compressed had advanced 50 cents to $14.50 and several other materials have shown an up-

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Billet Inquiries Appearing

Lower Prices Rumored on Recent Transactions—Users Beginning To Negotiate for Third Quarter Requirements of Semifinished Material

SEMIFINISHED STEEL PRICES, PAGE 71

Pittsburgh, July 8.—Two or three tentative inquiries for rerolling billets were received by sellers here last week, which is the first indication of interest in semifinished material in a long time. As yet no sheet bar inquiries are in the open market. Buyers of billets claim ability to purchase at less than $38, Pittsburgh or Youngstown, but that is the price named by several representative manufacturers. Practically the same condition exists as regards sheet bars, which openly are quoted at $40 but which price is largely nominal since it has not been tested by a tonnage inquiry. Buyers of forging billets are paying $43, Pittsburgh, without question, which gives the $38 price on rerolling billets some stability, since the differential for forging quality is $5.

Wire rods continue to be sold spasmodically at $48 and while some producers would quote $49, no business is being done at the latter figure. Skelp is quoted at 2.15c, base Pittsburgh, although some are naming 2.20c. Little demand is noted.

An inquiry was received here today from the Youngstown district for 800 tons of sheet bars. On this business one producer quoted $40, delivered.

Prices Unchanged

Philadelphia, July 8.—Some sales of scattered lots of semifinished material are noted this week. Prices remain unchanged.

Holdover Is Large

Cleveland, July 8.—The holdover of orders for semifinished material placed for the second quarter has been so large that some of the leading makers have not found it necessary as yet to open books for the third. There is encouragement in the fact that specifications on old contracts are being received more regularly, and users have not long to go before completing their obligations. Some are endeavoring to obtain lower prices on remaining tonnages by merging them with new orders. While negotiations are more in evidence buyers do not show much disposition to close at this time on sheet bars at $40 and billets and slabs at $38, valley, the general quotations. These figures have been shaded in some instances, but makers are endeavoring to avoid a drastic cut. Actual business is light, the

only sale noted here in the week being that of 300 tons of billets made by a lake interest for shipment to Chicago, at $38, f.o.b. Cleveland.

Specifications Lacking

Youngstown, O., July 8.—Specifications for semifinished tonnage are not plentiful owing to the slack conditions in the sheet market. New business is lacking. No inquiries for sheet bars are current and the market continues untested at $40, Youngstown. A fair proportion of tonnage against last quarter contracts is untaken and not much effort is being made to purchase tonnage beyond actual requirements.

Some Holdups

Are Asked by Consumers of Ferroalloys —Ferrovanadium Is Reduced

FERROALLOY PRICES, PAGE 71

New York, July 8.—A number of requests to hold up shipments have been made of late by consumers of both ferromanganese and spiegeleisen. Demand for these metals is dull and reflects the condition in the steel industry. Sales of spiegeleisen have been totally lacking the past week. Sales of ferromanganese have been restricted to carloads. Spiegeleisen continues to be quoted at $34 to $36, furnace, for 20 per cent metal. Ferromanganese continues at $107.50, duty paid tidewater, on the usual run of business.

A substantial business was done in ferrovanadium following the recent reduction in price of 25 cents a pound. The new quotation of the leading interest is $3.25, base, for the open-hearth grade; $3.75 for the tool steel grade. Other alloys and ores are featureless and unchanged in price, with practically no new business reported.

Few Inquiries Are Out

Pittsburgh, July 8.—With but few inquiries and orders developing, the situation as regards ferroalloys in this market is the same as it has been for several weeks past. Occasionally a carload of ferromanganese is disposed of at the full market price of $107.50, seaboard base, and while a flat $107 price has been quoted, there has been no formal decline. Users all are content to run along upon what they have in stock, or what they have coming in on contracts. Deliveries on some of these have been extended but no cancellations have been received and the suspensions are few. As yet, no interest is aroused in future requirements, prompt deliveries being available, and consumers see no immediate prospect of price advances. The spiegeleisen market also is quiet and practically untested. Quotations are unchanged.

Fifty per cent ferrosilicon is being offered in this district at $72, freight allowed.

Reduction in Ferro Rumored

Chicago, July 8.—Although ferromanganese still is quoted at $107.50, seaboard, duty paid, it is rumored that a reduction by British makers is imminent. A Wisconsin melter is inquiring for several hundred tons of spiegeleisen and it is believed that this business will go under $34, furnace or tidewater.

Coke Price Still Easing

Contract Market Now $3 Flat, and Some Spot Tonnage Is Offered at $2.75—Shrinking Production Fails To Check Decline

COKE PRICES, PAGE 71

Pittsburgh, July 8.—Shrinking production of beehive coke has accomplished little in the way of holding prices in check. The contract market now is quoted $3 flat, notwithstanding a few quotations of $3.25, representing the figure demanded before certain operators will resume. The Eastern Steel Co. closed with an affiliated coke interest for its July requirements at $3. The Shenango Furnace Co. is covering its needs in the spot market at a similar figure. Its furnace is starting up blast this week. One or two small eastern Pennsylvania furnaces still are negotiating. The spot market recently developed some $2.75 quotations, and $2.60, to brokers. One distress lot of standard furnace coke was sold from track at $2.50. The Columbia Chemical Co. ordinarily using 7500 tons of medium sulphur coke monthly bought 2500 tons for July shipment at $3. The Norfolk Smelting & Refining Co., Norfolk, Va., closed for Wise county coke because of a low freight rate. Foundry coke is selling more freely in one to five cars, usually at $4.25 to $4.50, although $4 again appears minimum. Some specifications have been received against $5 contracts. The Baltimore & Ohio railroad, Baltimore, bought six carloads of Preston county 72-hour coke below $3.50.

Production of coke for the week ended June 28 was 61,810 tons, compared with 74,300 tons in the preceding week, according to the *Connellsville Courier*.

Demand Near Standstill

Cincinnati, July 8.—Demand for all grades of coke is almost at a standstill. Contracting is in much smaller volume than usual at this season. Industrial users apparently are covered for the time being. Steady consumption of foundry coke is noted, but these requirements are being taken care of by by-product plants. Shipments from outside fields are light. A leading seller reports the sale of 550 tons of Wise county foundry coke to the Louisville & Nashville railroad. The American Sewing Machine Co., Belvedere Ill., is inquiring for 250 tons of the same grade. Prices continue weak. New River foundry coke is quoted at $8.50 to $9, ovens, while the Wise county grade ranges from $4 to $5, ovens.

Better Demand for Foundry Coke

St. Louis, July 7.—Purchasing of coke by all classes of consumers continues on a hand-to-mouth basis, but there is a slight improvement in demand for foundry grades. Several sellers report that their western customers are beginning to add to their reserves. Some increase in demand for beehive coke is noted, but shipments from eastern fields continue the smallest on record for this period of the year. Industrial users are buying for current requirements principally, but some contracting is reported by mines and smelters in the tristate lead and zinc district, also by water gas manufacturers. Prices show an easier trend, but no specific changes are noted.

Market Is Firmer

New York, July 8.—Due to curtailed production, the beehive foundry coke market is somewhat firmer. One producer has advanced its price on spot foundry coke to $4.75, Connellsville. Some brands still may be had at $4.50, and the market may be quoted at $4.50 to $5, Connellsville. On standard by-product foundry coke the market continues $10.41, delivered at Newark and other northern New Jersey consuming points.

Production Reduced

Birmingham, Ala., July 7.—Coke production in Alabama is not as active as it has been for several months, two by-product plants having shut down one or more batteries of ovens each. The number of active beehive ovens has not been reduced and there is a fairly good demand for this grade. Foundry coke is obtainable at $5.50. Furnace coke is down to $5.

Warehouse Situation Better

WAREHOUSE PRICES, PAGE 120

Cleveland, July 8.—July is expected to be a better month than June in the local iron and steel warehouse business. Small lots continue to predominate, but dealers claim the aggregate more satisfactory. Prices generally are firmer following the recession of several weeks ago. One interest has shaded sheets another $2 a ton, bringing blue annealed to 3.55c, 28 gage black to 4.45c and galvanized to 5.55c.

Summer Lull Felt

Philadelphia, July 8.—Warehouse sales of iron and steel products reflect the summer lull. Prices generally are unchanged.

Market Is Featureless

New York, July 8.—The warehouse market is featureless, with trading light and prices unchanged. Shapes and reinforcing bars continue to be the most active items on the list. The holiday on July 4 was a factor in the small trading of the past week.

July Inquiry Improved

Buffalo, July 8.—June was a disappointing month to local warehouses. Price reduction failed to increase buying. Early July inquiry indicates considerable improvement in demand, with structural shapes and plates the most active materials. Individual orders are small but consumers are buying often for immediate needs. Incompleteness of mill stocks is expected to increase warehouse business this quarter.

Bars Being Held Firmly

Resistance to Lower Quotations Generally Effective—Users Not Convinced Bottom Is Reached and Buying Is Slow

BAR PRICES, PAGE 71

Chicago, July 8.—June business in soft steel bars was slightly greater than that of May, but users generally still restrict buying to nearby requirements. Sentiment is improved but until price stability is attained users will not increase their commitments. Producers are making a point of their greatly curtailed output but buyers still control the market. It is probable considerable business is being held back pending gaining of strength by prices. A quotation of 2.25c, Chicago, is general on soft steel bars and both producers claim to be booking business at this price.

One maker of bar iron who has been down for several weeks has accumulated fair business and will resume next week. Demand for bar iron, like that for rail steel bars, is slack. For bar iron 2.20c, Chicago, still is the quotation, and for rail steel bars 2.10c to 2.13c, Chicago, governs.

Modest Sales Improvement

Boston, July 8.—The price of soft steel bars in New England has settled to 2.15c base Pittsburgh with some show of permanence. The leading interests declare this is where they will make their stand and the small producers who have been selling from 2.10c to 2.20c are inclined to fall in line at 2.15c. Inquiry is more active than had been expected in view of many plants closing. Sales at Boston are about the same as for the previous week despite the holiday.

Quotation Firm at 2.15c, Pittsburgh

Philadelphia, July 8.—Steel bars now are being quoted 2.15c, Pittsburgh. This quotation is firm. Demand now is slow and consists only of spot lots.

Loses Orders at 2.20c

Pittsburgh, July 8.—Several single carload orders for merchant steel bars were lost to a Mahoning valley interest last week because it quoted 2.20c, base Pittsburgh, and the market price appears to be firm at 2.15c, base Pittsburgh. Some effort is being made to establish that figure as the minimum, and producers are endeavoring to clean up outstanding obligations at anything lower than that price. Not much tonnage is accumulating on mill order books as steel buyers continue to pare specifications to the bone. Not much interest is being shown in third quarter contracts although a few have been written for small tonnages, which with the carryover from second quarter will cover customers' requirements for the third. Refined iron is quotably unchanged, with no improvement in demand or immediate outlook.

Some Larger Orders Placed

Cleveland, July 8.—New orders in steel bars in this territory are in better tonnage although no more numerous. The minimum lot orders by which buyers recently have been satisfying their needs are still general but do not predominate quite as much as in the past. The price situation seems to have become better clarified through the recent action of the leading producer in establishing a minimum basis of 2.15c, base Pittsburgh which now has been followed by the various independent mills. No reports of shading below this figure are current in the market this week.

Little New Business

Pittsburgh, July 8.—In some cases incoming business in cold-finished steel bars is practically absent and in others it is comparatively light. Operations average around 30 per cent of capacity and not much improvement is looked for before September. The one encouraging factor is that more cold-finished steel is being consumed than is being produced and stocks everywhere are low. The price is unchanged at 2.90c, base Pittsburgh.

Hoop Demand Spasmodic

HOOP PRICES, PAGE 71

Pittsburgh, July 8.—While 2.75c, base Pittsburgh, is quoted on most hoop and band business, 2.60c has been accepted on some fair-sized orders. Some exceedingly narrow sizes in thinner gages have brought around 2.90c and 3.00c. Operations are down to 30 or 35 per cent of capacity. Demand is slight and spasmodic.

Bolt, Nut, Rivet Demand Remains Quiet

NUT AND BOLT PRICES, PAGE 124

Chicago, July 8.—Despite the week-end holiday one maker of bolts and nuts experienced a slight increase in business. Demand as a whole remains quiescent and will not improve until the July inventory season has passed. The outlook from the automobile industry is no brighter, and decided improvement in bolts and nuts will not come until this industry enlivens. Some spot business in large machine bolts is going at 70 off, although one maker has made 60 and 20 off his minimum. Whatever contracting there is appears to be on the latter basis.

Large Bolt Inquiries Absent

Pittsburgh, July 8.—No large inquiries have developed in nuts, bolts or rivets in several weeks. In the case of rivets during the past two weeks several carload orders have been placed with producers here and as high as 2.60c base Pittsburgh has been obtained. Some particularly attractive lots developed 2.50c but that is not general. Most recent rivet orders have been placed by jobbers although one or two structural steel companies likewise have been buyers of single carloads. A few attractive orders are being received for nuts and bolts, some jobbers and users contracting for their expected third quarter requirements on the basis of 60 and 20 off for large machine bolts. Although some plants are down entirely one large producer here has been able to maintain 50 per cent operations but the general average of operations is not above 30 or 40 per cent of capacity.

Small Orders Numerous

Cleveland, July 8.—Numerous small orders for bolts and nuts are being received but individual orders lack size and the tonnage involved is small. Third quarter business is being accepted at the second quarter prices and these are reported being firmly held.

There is practically no spot rivet business, except for small tonnages which are being taken at 2.60c base Pittsburgh. Much third quarter business, however, is being taken and the price of 2.60c Pittsburgh is firm.

Wire Prices Weak

Jobbers Buy Better But Orders Are Scarce—Many Mills Down

WIRE PRICES, PAGE 71

Pittsburgh, July 8.—Orders for wire products still are scarce. Some wire and nail mills, down entirely last week, are operating this week only those departments which are needed. Further unconfirmed reports of price concessions are heard but sellers for the most part maintain 2.65c and 2.90c, base Pittsburgh, on plain wire and wire nails, and obtain a few small orders each week. At present, operations are below 40 per cent of capacity.

Eastern Prices Firmer

Philadelphia, July 8.—Recent sales of plain wire and wire nails have been made in this territory at $2 under the general market but the situation now shows greater firmness. Any prices under 2.65c, Pittsburgh for plain wire and 2.90c, Pittsburgh, for wire nails now are exceptional.

Again Shows Improvement

Chicago, July 8.—Jobbers' demand for wire and wire products has picked up a trifle but demand for manufacturers' lines is no better. Business is sufficient to keep wire plant operations at about 35 per cent of capacity. Competition for attractive business has developed an occasional price of 2.85c, Pittsburgh, for wire nails, but 2.90c is the general quotation on small business.

Pig Iron Is Firmer

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on melter's yards are so low that any sort of an upturn in general business would certaintly greatly stimulate buying. Northern iron can be had at $19 to $20, Ironton base, while southern iron ranges from $18 to $18.50, Birmingham base.

St. Louis Market Quiet

St. Louis, July 8.—Extreme quietness features the pig iron market in this district. Numerous plants are closing down for the usual midsummer repairs. At least three important consuming interests have indicated that they will stay closed for an indefinite period. Sellers report a few

scattering sales, the aggregate not exceeding 1500 tons. Inquiries are chiefly for small quantities, the largest being for 1000 tons of low silicon iron for a Kansas City melter. The Fulton Iron Works is asking prices on 500 tons for delivery through August, and 400 tons are wanted by an engine builder for the last half. Four Texas melters have inquired for an aggregate of 300 tons and 100 tons are wanted by a western Missouri interest. A Quincy melter is inquiring for 150 tons of high phosphorus iron for shipment through July and August. Prices continue weak. Two southern makers are offering at $18, Birmingham, but another furnace in that district reports having refused $18.50 for a small tonnage. As low as $18.50, Chicago, was done on a small amount for prompt shipment, but no quotations under $19, Chicago, have appeared in the open market. The leading local producer continues to quote $22.50 to $23, f.o.b. Granite City, but is understood to be meeting all outside competition.

Iron Ore Market Quiet

ORE PRICES, PAGE 124

Cleveland, July 8.—The market for Lake Superior iron ore has not as yet given indications of reviving, and at present there is a dearth of small-lot sales. Leading producers have been figuring on an inquiry for 200,000 tons for the American Radiator Co., but the company is not ready to close. The report of a shipment of 40,000 tons of ore from the Baraboo range in Wisconsin to St. Louis pertains to an order for 100,000 tons noted several weeks ago. The all-rail freight rate from the range to St. Louis is $2.12 compared with $2.93 from the other northern ranges, and the interest making the sale is supplying a large share of the tonnage from its Baraboo range mine connections.

Ore Imports Smaller

Philadelphia, July 8.—Imports of iron and steel and ores into this port for the week ended July 5 were smaller than in preceding weeks, and were composed of 3000 tons of manganese ore from British India; 4500 tons of chrome ore from Portuguese Africa, 115 tons of shapes from Belgium and 25 tons from France.

Fluorspar Sells Well

New York, July 8.—Sales of imported fluorspar continue to be made. On carload business the price as a rule is around $19 per net ton, duty paid. Lower prices are obtainable on lots ranging from 250 tons to cargoes. In lots of 250 to 500 tons, material containing 90 per cent calcium fluoride and 7 per cent silica can be had at around $18 per net ton duty paid. Material containing 94 to 96 per cent calcium fluoride and 2½ to 3½ silica can be had in large lots at $23 to $24 duty paid per gross ton.

Plate Aggregate Is Small

Two Lake Boats Reported Awarded Involve 10,000 Tons—Eastern Mill Operations Increased on Accumulation of Orders

PLATE PRICES, PAGE 71

Philadelphia, July 8.—An accumulation of orders in the past 10 days has resulted in more active plate production but the basic situation is unchanged. The Pennsylvania railroad bought a small tonnage. All current buying is small. Prices range from 1.80c to 2.00c, Pittsburgh, depending on the business. A price of 1.90c usually is minimum. The Baldwin Locomotive Works wants 1200 tons for 30 locomotives, for the Seaboard Air Line just awarded.

Plates Still 2.00c

Boston, July 8.—The leading sellers in this market have marked plates at 2.15c, base Pittsburgh but quotations still are circulating at 2.00c, and at least one sale at this lower level has been made during the last few days. Sales are dull, but inquiry shows slight improvement.

Eastern Market Quiet

New York, July 8.—Plate buying in this territory the past week has been quieter than for some time past. The New York Central has placed some tonnage. The Standard Oil Co. of New Jersey either has placed or is about to place some tonnage. Otherwise the market activity is confined to small lots. Prices continue to range from 1.90c to 2.00c, Pittsburgh, on the general run of business, but on some especially attractive orders less than 1.80c has been done.

A definite decision as between riveted or lock bar pipe is expected shortly by the city of Boston on three miles of water line involving about 3000 tons of steel upon which bids were taken some time ago. Later six miles additional requiring about 6000 tons is to be placed.

Awards Are Small

Pittsburgh, July 8.—Since the Standard Oil Co. of Louisiana awarded the Riter-Conley Co. tanks requiring about 3500 tons of plates, the largest plate award here is that of the Standard Oil Co. of New York, received this week by the Riter-Conley Co., for 2700 tons of plates needed for eight special oil storage tanks for Buffalo. General business is fair, orders for one, two or three tanks at a time being widely scattered. The plate price still is 2.15c, Pittsburgh, with some effort being made now and then successfully to obtain 2.20c on the less attractive tonnages. Most of the larger tank plate inquiries are closed. Water tanks for steel mills in the Wheeling, W. Va., district are under inquiry but these involve only a comparatively small plate tonnage.

Ship Plate Orders Delayed

Cleveland, July 8.—Reports are current that two of the four ore boats which have been under negotiation with lake shipyards have been placed involving probably 10,000 tons. The severe damage from the recent tornado sustained by the leading lake builder at its chief construction yard, it has been believed, will tend to delay the placing of some of these contracts. For 20 tenders for the Lehigh Valley railroad now being bid, 500 to 600 tons will be required. No further inquiries for tanks or other oil plant equipment have appeared but one for 150 tons of flange steel is unplaced. Although the recent establishment of a 2.15c, base Pittsburgh price by the leading producer which now has been followed by the larger independent mills was tended to give the market greater steadiness, prices still are erratic. On some business 2.10c Pittsburgh has been named and where the extras represented on certain business are attractive, as low as 2.00c, Pittsburgh, is being done by one or two mills.

Oil Requirements Lead

Chicago, July 8.—Steel plate demand still centers on oil country business, and it is competition for this business that is making the plate price weaker. A riveted pipe line for a western company calls for 6000 tons of plates. Scattered inquiry for oil storage tanks also mounts to 6000 tons. The 2000 tons of plates and other finished material in the 50 suburban coaches recently taken by the Pullman interests for the Lackawanna railroad and the 34 automobile coaches the Pennsylvania Car Co. will build for the Denver & Rio Grande railroad probably will be placed here. The plate price continues 2.25c to 2.35c, Chicago.

Far East Tool Man Dies

H. A. Irwin, representative in the Far East of the Landis Machine Co., Waynesboro, Pa., Landis Tool Co., Waynesboro, Pa., Warner & Swasey Co., Cleveland, and Kearney & Trecker Co., Milwaukee, died in Tokyo, Japan, June 22.

Mr. Irwin was in this country during the early part of 1923. He was for many years, direct representative of the Landis Tool Co. in Europe. He traveled extensively through France, Italy, Germany, Belgium and England. About four years ago he became connected with the four companies by whom he was employed at the time of his death, as representative in the Far East. He traveled in Japan, China and India in the interest of his principals.

Truscon Starts New Plant

Youngstown, July 8.—The Truscon Steel Co. has started operation of the addition constructed this year, costing $1,000,000 which will add virtually 50 per cent to its production.

The former capacity for several months has been operated full almost continually and 60 per cent of the added capacity is now in use. Present orders insure operation of the plant at its present rate at least until Aug. 1.

Concrete Market Quiet

Award of Large Projects Lacking but Numerous Small Tonnages Are Placed—Requirements for Road Work Still Strengthen Demand

REINFORCING BAR PRICES, PAGE 71

Chicago, July 8.—Awards of concrete reinforcing bars and new business both have sagged in the past week and estimating departments have little to engage them. New jobs coming up are uniformly for small tonnages. Reinforcing bars have been sold for less than 2.35c, Chicago, but in view of the fact some small lots have been going for close to 2.50c, the present market average probably is 2.35c, Chicago.

Market Steady at 2.20c

New York, July 8.—Despite the fact that commercial steel bars are selling at 2.15c, base Pittsburgh, the general disposition is to adhere to 2.20c on concrete reinforcing bars. Most of the current business is going at that figure, with 2.15c reserved for the most attractive tonnages. Nothing under 2.15c is heard on bars rolled from new billets. The volume of business the past week has been small, particularly due to the holidays. The amount of business in sight here is rather small.

Demand Generally Quiet

Cleveland, July 8.—Concrete reinforcing bar demand in this district continues quiet, with few inquiries or sales involving large tonnages. A good aggregate of small lots continues to be brought into the market. Bourne-Fuller Co., closed on 700 tons for three jobs recently. Another interest is reported as having taken 900 tons for a project in Cincinnati at a price approximately 2.00c, Pittsburgh. On average tonnages, 2.20c Pittsburgh, continues the market, although attractive business is obtaining a lower quotation. Rail steel bars are untested at 2.00c to 2.10c, mill. On goods out of stock the range now is 2.50c base Pittsburgh, to 3.21c, Cleveland. Mill competition is strong for such business as road work and some interests are making large price cuts to get these orders. A few cases of postponement of projects are coming up.

Several Projects Awarded

Pittsburgh, July 8.—A number of projects involving the use of reinforcing bars have been closed. The Franklin Steel Works, Franklin, Pa., was awarded 200 tons for the Parkersburg hotel, Parkersburg, W. Va., and the Truscon Steel Co. received the award of 185 tons for the building for the Citizens' Title & Trust Co., Uniontown, Pa. Additional orders for bars for state road work, about 250 tons, were purchased from the Concrete Steel Co. Some reinforcing concrete bar fabricators had a price of 2.15c, Pittsburgh, for about 48 hours and then returned to the 2.20c mill, 2.40c warehouse, figure.

CONCRETE CONTRACTS PLACED

Awards this week	**4,103 tons**
Awards last week	**3,580 tons**
Awards two weeks ago	**6,655 tons**

900 tons, project in Cincinnati, reported placed with unnamed fabricator.

573 tons, drainage improvement district No. 8, Los Angeles, to American System of Reinforcing.

555 tons, Women's Athletic club, Los Angeles, Macdonald & Driver, general contractors; bars to American System of Reinforcing.

250 tons, steam power plant in Cleveland for Cleveland Electric Illuminating Co., to Bourne-Fuller Co.

250 tons, Pennsylvania state road work, to the Concrete Steel Co.

230 tons, Ohio Bell Telephone Co. building at Canton, O., to Bourne-Fuller Co.

225 tons, building for Columbus Bolt Works, Columbus, O., to Bourne-Fuller Co.

200 tons, St. Scholastica's school, Chicago, to the American System of Reinforcing.

200 tons, Parkersburg hotel, Parkersburg, W. Va., to the Franklin Steel Works.

185 tons, building for the Citizens' Title & Trust Co., Uniontown, Pa., to the Truscon Steel Co.

175 tons, Albany bridge, Portland, Oreg., to unknown jobber.

140 tons, City club, Los Angeles; J. C. Bannister, 903 North Mariposa street, general contractor; steel bars to American System of Reinforcing.

120 tons, road work at Roselle Park and New Brunswick, N. J., to Igoe Bros.

100 tons, water works construction, Springfield, Mass., to McClintic-Marshall Co.

CONCRETE CONTRACTS PENDING

810 tons, Ninth street viaduct, Los Angeles, Northern Pacific Construction Co. awarded general contract; steel not yet placed.

700 tons, Union League club building, Chicago; new bids about to be taken.

212 tons, 12-story office building, 139 North Broadway, Los Angeles; bids being received.

180 tons, warehouse for Malbin Bros., Cleveland; pending. Philip Kirschner general contractor.

150 tons, building for the Henkey Baking Co., McKees Rocks, Pa.; general contract awarded Henry Bussey.

137 tons, 3-story telephone building, Los Angeles; bids in.

Tonnage unstated, office building and warehouse in Chicago for Parke, Davis & Co., Detroit.

Tonnage unstated, 5-story garage for Kinzie Building Corp., Chicago; plans by David S. Klafter, 64 West Randolph street, Chicago.

Tonnage unstated, 3-story building and 2500-seat theater, Chicago; plans by E. P. Steinberg, 109 North Dearborn street, Chicago.

Large Pipe Line

Projects Feature Tubular Market—Involve Large Tonnage

PIPE PRICES, PAGE 71 AND 124

New York, July 8.—Large pipe line projects, involving several hundred thousand tons of steel, feature the tubular market. The Andean National Corp., 342 Madison avenue, New York, has booked a contract for an 800-kilometer pipe line, or 500 miles, to be built in Colombia, South America. This project alone involves several hundred thousand tons of pipe. The Standard Oil Co. of New Jersey is negotiating for 85 miles of 6-inch and 90 miles of 8-inch line pipe. The Pan-American Petroleum & Transport Co. has not yet taken action on more than 27,000 tons of 10-inch and 8-inch line pipe for California. The International Petroleum Co., subsidiary of the Imperial Oil Co. of Canada, is inquiring for 40,000 tons of line pipe for Colombia, South America. Municipal work continues lacking in the local cast iron pipe market. No orders have been placed recently and little or nothing is in sight for the immediate future. A fair amount of private demand still prevails and the market appears as firm as at any time of late.

Tonnage Holds Its Own

Pittsburgh, July 8.—Pipe continues to hold its own both as regards new business and shipment. New orders are not as large as they were and are not as large as they should be at this time, but the weekly aggregate is considered fair when compared with total tonnage specified in other finished steel lines. Backlogs on mill order books are not as extensive as formerly due to the recent heavy shipments, but a large amount of oil country goods still is to be taken out. Mill prices are firm and jobbers appear to be stiffening somewhat in their price position as well. Operations this week average between 60 and 70 per cent of capacity.

Boiler tube prices continue subject to severe price competition and open discounts are being modified sharply.

Slump Is Arrested

Chicago, July 8.—While bookings of cast iron pipe are not up to shipments, the slump of the past three months appears to have been arrested. Municipalities again are beginning to enter the market and several makers have been booking slightly more than their shipments. The competition still is the keenest in the larger sizes. Detroit has split its 5350 tons among the United States, American, Lynchburg and Clow companies. On 4-inch pipe, $58.20, Chicago, continues, and on 6-inch and over, $52.20 to $54.20, Chicago.

Specifications More Numerous

Birmingham, Ala., July 7.—Cast iron pipe plants in the South now are operating almost to capacity and have little stock on hand. Specifications have been quite numerous since concessions on price have been given and orders are being booked steadily for third quarter delivery. Inquiries are in sight for fourth quarter business. Cast iron soil pipe and fittings manufacturers report a lagging business. The recent reduction of $10 per ton in standard pipe prices bringing them down to $50, has not induced much buying.

CAST IRON PIPE PLACED

5350 tons at Detroit, awarded as follows: 2150 tons to the United States Cast Iron Pipe & Foundry Co., 1500 tons to the Lynchburg Pipe Foundry Co., 1200 tons to James B. Clow & Sons and 500 tons to the American Cast Iron Pipe Co.

450 tons, Bellingham, Wash., to the United States Cast Iron Pipe & Foundry Co.

130 tons, Middletown, O., to the National Cast Iron Pipe Co.

CAST IRON PIPE PENDING

115 tons, Watertown, Wis.; bids in July 14.

Strip Sales Are Steady

STRIP PRICES, PAGE 71

Pittsburgh, July 8.—Orders for hot and cold-rolled strip steel are coming in at about the same rate as in June, about 40 per cent of normal. One large producer here reports shipments during June were within 5 per cent of the new business

received so that operations generally are on the same footing, 35 or 40 per cent. While some automotive interests recently bought hot strips in lots of 1000 tons of a size below 2.50c, and 2.50c was quoted on some like attractive business, the usual market figure on hot strips is 2.60c, base Pittsburgh. A price of 2.75c is quoted on 3-inch and narrower, 16-gage and lighter. Cold strip is firm at 4.50c, although some 4.25c quotations have appeared in Chicago territory by new makers desirous of securing business.

Tin Plate Orders

Still Held Down—Standard Oil Divides 200,000 Boxes

TIN PLATE PRICES, PAGE 71

Pittsburgh, July 8.—New orders for tin plate are scarce, and this week operations probably will slip from the average of last week, 55 to 58 per cent of capacity, to about 50 per cent. Many of the tin mills did not resume operations Monday morning as expected and will be kept idle for a day or two longer than anticipated. The latest report in the trade here concerning the 200,000 base box inquiry of the Standard Oil Co. of New Jersey, for export is that the order is being divided among three or four leading makers, although confirming orders have not been received here as yet. No demand is current for stock plate but the price remains unchanged at $5.15 per base box. Production plate is firm at $5.50, although a buyer of an extra large tonnage would perhaps be successful in developing a lower figure.

Distributes Large Order

New York, July 8.—The Standard Oil Co. of New Jersey has distributed among three or four makers, orders for a total of 200,000 boxes of tin plate for shipment to Bayway, N. J., for use in its export shipments of oil. The Vacuum Oil Co. has distributed a smaller tonnage.

Market Shows Improvement

Youngstown, O., July 8.—A slight improvement in the tin plate market is apparent. The leading maker here has 65 per cent of capacity engaged and sufficient business is in hand to support this rate for the next three weeks. Makers of tin cans supplying the canning trade are displaying more interest. Orders are being placed more frequently with immediate delivery requested. Prices on production plate are firm at $5.50 per base box Pittsburgh.

Buy Largely from Stock

Philadelphia, July 8.—Buying of tin plate is largely from stock at prices ranging from $4.90 to $5.15, Pittsburgh, per base box. Consumers in this territory are postponing action on their second half requirements.

Magnesite Is Steady

New York, July 8.—Dead burned Austrian magnesite in crushed gravel form continues to be offered here at $40 per net ton, duty paid tidewater.

Sheets in Seasonal Pause

Orders for Common Grades More Frequent—Valley Output Broader, with Prices Steady—Pittsburgh Operations Below 35 Per Cent

SHEET PRICES, PAGE 71

Youngstown, O., July 8.—Orders for common sheets are more frequent, although no pickup in the volume of tonnage is apparent. Otherwise no important change has occurred. Prices are slightly firmer, but competitive quotations on black still are encountered at 3.50c, base, Pittsburgh. The price ranges up to 3.65c There appears to be a settling down to a basis of 3.60c, and the bulk of the business recently is understood to have been closed at about that price. The range of quotations on galvanized is somewhat wider and no particular level has been established. Tonnages of this grade can be purchased from certain producers at 4.65c, Pittsburgh while other makers refuse to consider less than 4.70c. The sheet business usually is dull during July and the early part of August and the current month appears to be no exception. Orders at the beginning of this week were light. Operations are slightly broader than a week ago when various makers here did not start up on account of the holiday. Briskness in the fine finished sheet market is lacking although no price change is heard. Producers are holding firmly to 5.10c, Pittsburgh. Consumers, however, are not participating in the market beyond immediate needs and the tonnage involved is not sufficient to support profitable operation.

Production Is Larger

Buffalo, July 8.—The Seneca Iron & Steel Co. has resumed production following the holidays, with five or six mills in operation. Inquiry and orders show considerable improvement, and July production will exceed considerably that of June in this district. Prices are steady.

Average Under 35 Per Cent

Pittsburgh, July 8.—Shutdowns among the sheet mills due to the holiday period probably will be more in evidence this week than last week. So many men were not ready to return to work yesterday that a number of mills will continue their idle period for the present. The average of operations last week was about 35 per cent, and it will be somewhat lower this week. This will not cause any hardship as demand is light. Mill stocks are about normal, so that spot orders or specifications can be easily taken care of. Small orders from widely scattered buyers still rule. In connection with price, the American Sheet & Tin Plate Co. and a number of independents continue to maintain 2.80c, 3.65c and 4.80c, on blue annealed, black and galvanized sheets, respectively, but in one or two directions concessions of $2 or $3 per ton under those levels still are available, such as 3.50c on black in the East and in Chicago, and 4.60c on galvanized in one direction, although the usual concession stops at 4.70c. Makers of blue annealed sheets are keeping well to the 2.80c base price although occasionally a 2.70c or 2.75c quotation is developed. So far as can be ascertained, nothing lower than 5.10c has appeared on full-finished automobile sheets, although some automobile sheet seconds, held for about a year in Ohio, have been sold at 3.00c and others have appeared as low as 3.25c. One large producer here received orders in one day recently from Japan for 4000 tons of thin gage black sheets. Japan appears to have started on another buying program, collecting a large cargo of various kinds of steel products for one of its ships.

Buyers More Active

Philadelphia, July 8.—Sheet buying is somewhat better. Prices are unchanged excepting for some galvanized, sold at 4.65c, Pittsburgh.

Firmness Is Seen Ahead

Chicago, July 8.—Makers of steel sheets continue greatly in need of business but the expectation of improvement is holding prices at the level of 4.80c, Pittsburgh, for galvanized, 3.65c for black and 2.80c for blue annealed. Cool weather which would be welcomed in other years is proving baneful in view of the lack of orders. Mills outside the Chicago district are understood to be seeking business in galvanized at 4.75c and black sheets at 3.60c.

Receiver Is Appointed for Steel Company

A receiver has been named for the Hunter Crucible Steel Co., Cleveland, the United States district court acting on an involuntary petition in bankruptcy filed June 24 by the Arco Co., Cleveland, paint manufacturers. The petition sets up claim aggregating $2906. The receiver, William B. Woods, in petitioning the court for the service of a legal adviser, stated that the company's land, buildings and equipment are idle, and that much of the company's personal property is in a warehouse. The outstanding mortgage is held by the Union Mortgage Co. Other claims soon falling due are unsecured. The insurance on the company's property recently was reduced on suggestion of the mortgage company which, the petition states, did not want to be liable for premiums on insurance amounting to over $200,000. The Hunter company has not yet filed an answer.

The Hunter Steel company was organized early in 1923 with Arthur H. Hunter, formerly president of the Atlas Crucible Steel Co., as president. It acquired the plant of the Electric Steel & Forge Co. occupying a 15-acre plot at 6600 Grant avenue, Cleveland, built in 1916 and 1917. It planned to produce a full line of hot rolled, electric and crucible high-speed carbon and alloy steels. With certain improvements the annual capacity was to be 6000 tons of hot rolled bars and 12,000 tons of light locomotive and special forgings.

Structural Awards Fewer

Large Projects on Verge of Closing Lend Strength to Market—Inquiries Also Are Lighter—Fabricators and Mills in Better Position

STRUCTURAL SHAPE PRICES, PAGE 71

New York, July 8.—Structural activity over the past week fell off rather sharply in this district. Few contracts of size were placed, and inquiries were light. One large fabricator states that with few exceptions where only fair sized tonnages were involved, individual inquiries did not run more than 200 tons. A factor undoubtedly was the holiday which resulted in many companies being shut down for several days. Prices on shapes remain virtually unchanged at 2.10c to 2.20c, Pittsburgh.

Prices Become Firmer

Boston, July 8.—Following the price stabilization on the part of the larger producers the structural shape market in this district has strengthened appreciably and 2.15c base Pittsburgh is now the accepted level. Heretofore some of the smaller mills have been quoting 2.00c so that the past week has seen a definite advance. One fabricator with 200 tons to place this week was unable to secure bids below the 2.15c Pittsburgh level. Recent awards are still few and of small tonnage but inquiry seems to have strengthened rapidly since the firmer price tone developed.

Prices Are Easier

Philadelphia, July 8. — Structural shape demand is fair. Prices are easier, with the usual figure being 2.15c, Pittsburgh. In some instances even 2.00c, Pittsburgh has been shaded materially.

Better Feeling Evident

Buffalo, N. Y., July 8.—A decidedly better feeling in current among fabricators. In addition to placement of two lots of about 100 tons, local plants have received orders for a number of smaller tonnages. Bancroft-Jones Corp. has orders for a number of lots for export buildings of the Standard Oil Co. These aggregate more than 100 tons. Schedules indicate local fabricators will be fairly busy for the next 60 days.

Small Awards Continue

Pittsburgh, July 8.—Structural steel fabricators here report that the price situation on material fabricated and erected still is keen, many shops being hungry for business. Some are known to have paid 2.15c base Pittsburgh, for plain material, but their bids would indicate a much lower base price so that it is evident profits, overhead or other running expenses, have been sacrificed. Miscellaneous awards this week total 1150 tons. Inquiries are fairly plentiful although in the immediate vicinity of Pittsburgh they are scarce. Some fabricators have covered at least a portion of their expected third quarter requirements; others have yet to contract but having some second quarter tonnage still to absorb are indifferent.

Permits Double Last Year

Chicago, July 8.—Building permits in Chicago in June called for construction costing $34,288,250, compared with $17,683,500 in June, 1923, while for the first half of 1924 permits aggregated $159,964,370 against $183,274,162 for the first half of last year. One maker of plain material appraises structural activity as exceedinig that in other lines of finished material, and last week figured 3000 tons of steel for eight jobs. Awards the past two weeks have been rather light and not so much new work seems to be coming out. The Union League club, Chicago, a 5000-ton job, is alive again. While the open quotation on plain material continues 2.35c, Chicago, competition has compelled a lower price outside Chicago proper and there are rumors of shading within the city. A range of 2.25c to 2.35c, Chicago, describes the market for this district.

Few Large Awards Being Made

Cleveland, July 8.—Little activity was evident in the way of awards in the structural market in this district last week. Many projects still are being figured, but few show a tendency towards active closing. The Brown Hoisting Machinery Co. was awarded 850 tons for rebuilding a damaged dock at Ashtabula for the New York Central railroad. This is one of the three docks damaged before the recent tornado which swept the ore and coal docks at the Lake Erie ports. A large tonnage is involved in the rebuilding of the ore and coal docks at Lorain which were wrecked in the last storm and also those at Conneaut previously damaged, but this has not yet come out.

STRUCTURAL CONTRACTS PLACED

Building awards this week ..... 9,749 tons
Building awards last week ..... 25,425 tons
Building awards two weeks ago.. 34,144 tons

2700 tons, plates, eight special tanks for the Standard Oil Co. of New York for erection at Buffalo, to the Riter-Conley Co.
1060 tons, bridge work for Big Four railroad to Fort Pitt Bridge Works, American Bridge Co. and McClintic-Marshall Co.
1000 tons, apartment for Louis Gerbino, 104th street and West End avenue, New York, to Paterson Bridge Co.
900 tons, apartment at Ninety-fifth street and Fifth avenue, New York, to Hinkle Iron Co.
850 tons, rebuilding ore bridge for New York Central railroad, Ashtabula, O., to the Brown Hoisting Machinery Co., Cleveland.
800 tons, theater and office building at Coney Island, N. Y., to George A. Just Co.
600 tons, Big Four railroad bridges, to Wisconsin Bridge Co.
512 tons, Montlake bridge, Seattle, to Wallace Equipment Co.
400 tons, beam bridge work for the New York Central railroad, to the Jones & Laughlin Steel Corp.
380 tons, addition to Commonwealth Steel Co., Granite City, Ill., to an unnamed St. Louis fabricator.
350 tons, bridge for Reading railroad at Wyomissing, Pa., to Phoenix Bridge Co.
315 tons, bridge near Somerville, N. J., to Bethlehem Steel Co.
310 tons, New Process building, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to the American Bridge Co.
300 tons, First National bank, Altoona, Pa., to the McClintic-Marshall Co.
250 tons, power house at Devon, Conn., to American Bridge Co.
235 tons, bridge at Georgesville, O., for the Big Four railroad, to the American Bridge Co.
205 tons, building for the Madison-Sunnet Investment Co., Toledo, O., to the American Bridge Co.
179 tons, bridge for Iowa state highway commission, to Des Moines Steel Co.
178 tons, Bogachiel bridge, Olympic, Wash., forest reserve, to Wallace Equipment Co.
175 tons, bridges for Harrison county, Iowa, to the Des Moines Steel Co.
120 tons, Missouri Pacific railroad bridge repairs, to American Bridge Co.
120 tons, bridge at Rutland, Vt., to Phoenix Bridge Co.
110 tons, transmission towers for River road station of General Electric Co., Buffalo, N. Y., to R. S. McMannus Steel Construction Co.
100 tons, Wurlitzer, N. Y., school, to R. S. McMannus Steel Construction Co.
100 tons, Dr. Nichols hospital, Savannah, Mo., to Des Moines Steel Co.
100 tons, Winthrop high school, Winthrop, Mass., to Builders Iron & Steel Co.
100 tons, export buildings for the Standard Oil Co., to Bancroft-Jones Corp.
Tonnage unstated, plant for Dover Fire Brick Co., Strasburg, O., to the Penn Bridge Co., through the Factory Products Co., Pittsburgh.

STRUCTURAL CONTRACTS PENDING

5000 tons, Union League club building, Chicago; new bids have been received.
3000 tons, building at Randolph and Franklin streets, Chicago, for Parke, Davis & Co., 162 North Franklin street, that city; pending.
3000 tons, Knights of Columbus building, New York; pending. Previously noted as involving 1000 tons.
1500 tons, in aggregate for schools Nos. 39, 130 and 131, New York; general contractors' bids closed July 8.
1500 tons, United States engineers office, St. Louis; 600 tons for a Mississippi river light ship tender and 900 tons for six barges; pending.
1275 tons, bridge across Charles river, Boston, general contract let to V. Grundy, Boston; Boston Bridge Co., low bidder on steel; no award.
1200 tons, shop buildings for the Southern railroad Spartanburg, S. C., bids asked.
930 tons, syndicate trading building, 240 Madison avenue, New York; previously noted as contemplated, actively pending.
700 tons, Boston Five Cents Savings Bank building, Boston; plans ready.
700 tons, Kresge building, Jersey City, N. J.; pending.
550 tons, Rutgers Presbyterian and United Mortgage & Trust building, Seventy-third street and Broadway, New York; pending.
425 tons, newspaper building at Miami, Fla.; pending.
400 tons, bridge work for Norfolk & Western railroad; pending.
300 tons, hospital, Syracuse, N. Y.; pending.
275 tons, bridge at Norristown, Pa., Whiting-Turner Construction Co., low bidder on general contract.
175 tons, telephone building at Bloomfield, N. J.; Bloomfield, McKenzie, Voorhees & Gmelin, 342 Madison avenue, New York, are architects.
100 tons, suburban depot for Macy Co., New York; pending.
100 tons, plates for Duwamish river tunnel, Seattle; general contract to Puget Sound Bridge & Dredging Co.

Rainey Plants Closed as Miners Strike

Pittsburgh, July 8.—W. J. Rainey, Inc. has made a counter movement in the strike of 800 of its workmen at the Allison and Royal plants in the Connellsville region by announcing that the operations will be shut down indefinitely. Most of the strikers are miners. The Rainey corporation was the last of the independent operators to reduce wages to the 1917 level in the Connellsville district, but was the only one to meet with opposition from the men. The strikers went out July 1. The H. C. Frick Co., Steel corporation subsidiary, has not given intimation of any intention to reduce wages

Upon the order of the board of directors, Carl Hartmann, president and general manager of the Green Bay Drydock Co., Green Bay, Wis., has filed a voluntary petition in bankruptcy in beralf of the corporation. Schedules

show liabilities of $169,421 and assets of $66,191.

Organize Foundry Supply Sales Organization

The Pennstate Corp., Liberty building, Philadelphia, has recently been incorporated to handle the sale of a corebinder manufactured by the Curtis Bay Copper & Iron Works, Baltimore, and other lines of foundry supplies. The company was organized by interests associated with the Pennsylvania Foundry Supply Co., Philadelphia, and the Interstate Foundry Specialties Co., 248 Fulton street, New York. S. H. Cleland. and Edward Kahl of the latter organization, have been elected president and secretary, respectively, while S. B. Wentz and H. E. Mandel, of the Pennsylvania Foundry Supply Co., have been made vice president and treasurer, respectively. The new company has a branch office at 248 Fulton street, New York, and contemplates the establishment of other branch offices in the near future.

It is understood that eventually the Interstate company and the Pennsylvania Foundry Co. will merge into the newly organized Pennstate Corp. For the present they will continue to handle their own separate accounts, which include parting compounds, facing sands, etc.

Pump Company Sells Plant

The Worthington Pump & Machinery Corp., New York, has sold two of its Pennsylvania companies. The former Epping-Carpenter Pump Co. plant at Forty-third street and the Alleghany river, Pittsburgh, was sold to the Pittsburgh Piping & Equipment Co., manufacturer of piping for power plants. The other plant, at Hazleton, Pa., was sold to the Pennsylvania Power & Light Co., with offices at Allentown, Pa., and New York. The sale of the properties is in line with the policy of the Worthington company to concentrate its operations in its large plants.

Pittsburgh Mills Resume

Pittsburgh, July 8.—After a 4-day shutdown of steelworks, the Carnegie Steel Co. has resumed operations on the basis of 42 to 45 per cent of ingot capacity. The company is maintaining 28 blast furnaces in operation. Independent companies are averaging from 40 to 50 per cent of ingot capacity. The Shenango Furnace Co. will resume operations July 12 with the stack at Sharpesville, Pa., which was shut down June 27 for repairs.

Sales At Low Point

Detroit, July 8.—Sales of iron and steel are at a low point. Many plants plan shutting down for two weeks in orders to make surveys.

Iron and steel dealers report little business moving in view of this curtailment. Inquiry has fallen off. Stocks of all grades of iron and steel products are fairly liberal at this time. Prices are unchanged at recent declines.

Railroad Market Better

Equipment Repair Work More Active—Norfolk & Western Inquiring for 50,000 Tons of Rails—Accessory Specifying Light

RAILROAD TRACK MATERIAL PRICES, PAGE 71

New York, July 8.—Featuring railroad activity is an increase in demand for car repair work. Several of the larger railroads, including the Pennsylvania, Baltimore & Ohio, New York Central and Burlington are now in the market. According to steel interests, repair work now on inquiry will take close to 14,000 tons. Baldwin Locomotive Works has booked 30 locomotives for the Seaboard Air Line. The Lehigh Valley railroad is inquiring for 20 locomotives and 20 tenders. The West India Sugar Co. has ordered one locomotive from the Baldwin Locomotive Works.

Bethlehem Steel Export Co. has booked 2000 tons of rails for Cuba. Recently, the United States Steel Export Co. booked 5000 tons of rails for Cuba.

Car awards for July were the lightest in many months. Following is a comparative statement:

Car Orders

June	438
May	511
April	10,250
March	13,150
February	41,350
January, 1924	8,150
December	11,600
November	5,050
October	1,125
September	897
August	2,780
July	1,450
June	1,785
May	2,255
April	9,800
March	42,500
February	9,300
January, 1923	15,000
1923 total	103,487

Light Rail Demand Better

Pittsburgh, July 8.—After two or three weeks of absolute quietness sellers of light rails are enjoying good specifications and are receiving a few new orders for single carloads. On some of these 2.00c, base Pittsburgh, is the price adhered to; on others 1.90c is the successful figure where competition is particularly keen. Track accessory demand is anything but satisfactory, buyers paring down their purchases. Prices are unchanged on the quoted basis.

Large Rail Inquiry Out

Chicago, July 8.—An inquiry for 50,000 tons of steel rails from the Norfolk & Western railroad constitutes the first good sized rail business to come before local makers in some months, but eastern mills probably will get the bulk if not all of the business. This inquiry was not accompanied by an inquiry for the necessary track fastenings.

One maker last week booked a total of 12,000 kegs of spikes and bolts and 2000 tons of angle bars. Track fastening prices are extremely weak but local makers have not changed their published prices.

The New York Central railroad has decided to build in its West Albany shops the 28 horse cars reported awarded to the Merchant Dispatch company. The Chesapeake & Ohio railroad has an inquiry out for repairs to 500 gondolas.

Canadian Government Orders Rails

Ottawa, Ont., July 7.—The government has awarded an order for 30,000 tons of steel rails to the British Empire Steel Corp.

CAR ORDERS PLACED

Delaware, Lackawanna & Western, 50 suburban coaches to the Pullman Car & Mfg. Corp. and 10 passenger-baggage cars to the Bethlehem Steel Co.

New York Central, 28 horse cars to be built in its West Albany, N. Y., shops.

Central of Brazil railroad, 50 refrigerator cars, to Middletown Car Co.

Western Fruit Express, 1000 underframes, reported last week as placed, went to American Car & Foundry Co.

Union Refrigerator & Transit Co., 500 cars, to American Car & Foundry Co.

60 logging cars, 42 feet long, capacity 80,000 pounds, for Spokane, Portland & Seattle railroad, to Magor Car Corp.

CAR ORDERS PENDING

New York Central, 60 express refrigerator cars; pending.

Chesapeake & Ohio, repairs to 500 gondolas; pending.

Chilean State railways, 100 flats, pending.

Seaboard Air Line, 10 cabooses and 18 coaches; pending.

Tool Companies Merge

The Victor Tool Co., Waynesboro, Pa., manufacturer of collapsible taps, automatic dieheads, floating tool holders, and nut facing machines has been merged with the Landis Machine Co., Waynesboro, manufacturer of threading die heads and machines. In the future all correspondence applying to Victor company products should be addressed to the Landis Machine Co., Victor plant, Waynesboro, Pa. The merger permits the Landis Machine Co. to handle both internal and external threading requirements.

Implement Prices Reduced

Toronto, Ont., July 7.—The leading agricultural implement manufacturers, including the Massey-Harris Co., International Harvester Co., Cockshutt Plow Co., John Deere Plow Co., and Frost & Wood, have issued new price lists, showing substantial reductions for many implements, as a result of tariff reductions. Some of the principal reductions are as follows: For western Canada, 6-foot grain binder, $13; 8-foot binder $14.50; corn binder $13; drills complete from $11 to $17. Eastern Canada, grain binders from $12.50 to $14.50; corn binders $13; manure spreaders $11, ensilage cutters $18 to $15, cream separators $4 to $6, reversible sulky plow $6.50.

Reports from Seattle state that an inquiry is out from Japan for old steel rails. Several exporting companies are bidding on this business. Because of lack of deadweight cargo the trans-Pacific steamship lines are quoting the very low freight of $3.50 gross ton, which scarcely covers the cost of handling.

The Nonferrous Metals

Metals Dull and Some Prices Sag Further—Europe Using Large Quantities—Zinc and Aluminum Steady

	Copper—Electro delivered	Copper—Lake delivered	Spot tin Straits	†Lead New York basis	Zinc St. Louis basis	Spot† aluminum	Spot antimony	Spot nickel
July 2	12.50	12.62½	44.75	7.00	5.80	26.50	8.37½	28.00
July 3	12.40	12.50	44.00	7.00	5.80	26.50	8.25	28.00
July 4	Holiday							
July 7	12.37½	12.50	44.12½	7.00	5.75	26.50	8.25	28.00
July 8	12.30	12.50	43.75	7.00	5.77½	26.50	8.25	28.00

†Outside market quotation.

NEW YORK, July 8.—Dull, listless markets have prevailed in the nonferrous metals through the holiday season. American prices have followed London tendencies in a general way, while London prices have at the same time been prone to reflect American business news and prospects.

The feature of the situation is the gradual growth in European absorption of metals, with the promise of considerable further expansion when the Dawes plan is accepted. At present American exports of copper are at a rate equaled only in the record war year, 1917, at nearly 100,000,000 pounds monthly. Europe likewise is taking the entire output of Mexican lead, 15,000 to 16,000 tons, which a few months ago was largely absorbed in America. It is drawing upon the United States and Canada for considerable tonnage of zinc, while almost a shortage of aluminum exists abroad. Under such conditions our markets are held in restraint only by the uncertainties of domestic trade.

Copper has sagged 12.25c to 12.37½c delivered, for deliveries over the next few months. Lake copper has been offering at 12.50c delivered, and casting is down to 12.00c refinery. Little activity has been manifest in any of the manufacturing industries. Copper and brass rolled products are in keen competition, with operations at 50 per cent. Wire is in relatively better position, due to public utility needs but competition here is keen with bare wire at 14.50c base, and weatherproof 15.87½c to 16c, base, for large lots.

Zinc has hovered around 5.75c to 5.80c, East St. Louis, with scattered buying by galvanizers and brass mills, but with continued export interest. Foreign buyers are bidding just below the going market and have picked up occasional lots. Zinc stocks have been increasing steadily, due to reluctance of individual smelters to curtail.

Lead demand has been slow, with prices holding at 6.65c, East St. Louis, 7c New York, for July and August shipments.

Tin prices have ranged between 43.75c and 44.75c, with practically no consuming buying. Some professional trading has been done. Rumors are heard of renewed accumulation by some of the important London operators. The June 30 statistics showed increase in world supplies, estimates ranging between 300 and 2000 tons, according to authority.

Aluminum and antimony quotations have been unchanged with buying negligible.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Copper, hot rolled, 4 oz., min..	19.50
High brass	16.25
Zinc, ga. 9 to 18 (plates ½c less)	9.50
Lead, full sheets (cut ¼c more)	10.75
Aluminum, bright, 0 to 35 gage..	37.50 to 92.00
SEAMLESS TUBES	
High brass	20.50
Copper	21.75
RODS	
High brass, round, ⅜ to 2½-inch	14.00
Naval brass rods	16.75
WIRE	
Copper	14.50 to 14.875
High brass	16.75

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
Cleveland	8.25 to 8.75
New York	7.50 to 7.75
Chicago	8.00 to 8.37
HEAVY YELLOW BRASS	
New York	5.75 to 6.00
Chicago	6.25
Cleveland	5.75 to 6.00
ZINC	
New York	3.25 to 3.50
Cleveland	3.00 to 3.25
Chicago, dross	4.25
HEAVY COPPER AND WIRE	
Cleveland	9.75 to 10.00
New York	9.50 to 10.00
Chicago	10.00
RED BRASS TURNINGS	
New York	7.00 to 8.00
Cleveland	7.50 to 7.75
Chicago	7.50 to 7.75
YELLOW BRASS TUBING	
Cleveland	6.50
NO. 1 BRASS ROD TURNINGS	
Cleveland	6.00 to 6.50
New York	6.00 to 6.50
Chicago	6.25 to 6.50
ALUMINUM BORINGS	
Cleveland	10.00

Secondary Metals

Casting copper, refinery	12.25
Remelt aluminum No. 12	20.50 to 21.50

May Bring In Chinese Pig Iron at Birmingham

Birmingham, Ala., July 7.—Interest is manifested in a report that the Southern railway had made application for an import rate on pig iron between the port of Mobile and Birmingham similar to the export rate from Birmingham to Mobile, the purpose being to bring in Chinese pig iron for consumption in Birmingham. Cast iron pipe interests were said to be considering the importation of Chinese iron, having been made an offer for a small tonnage at a price much under that in existence here.

By-Products Quiet

Restricted Output Having Steadying Effect on Prices

New York, July 8.—Listlessness again features the sulphate of ammonia market. Little interest has yet been manifested by the fertilizer interests, and export demand remains unsatisfactory. Usually the fertilizer interests cover the bulk of their future requirements late in May and early in June. It now appears doubtful if there will be buying of consequence before the end of this month. Prices are unchanged at $2.45 to $2.55, works, for domestic account and $2.55 to $2.60, port, in double bags for export. The market is deriving much of its strength from the present reduced operations.

Quotations on light oil distillates are firm despite a restricted industrial demand. Here, also, the marked reduction in the output is the chief stiffening factor. Pure benzol may be quoted at 25 cents, works, in tanks and 30 cents in drums; 90 per cent, 23 cents works in tanks and 28 cents in drums; xylol, 28 cents, works, in tanks and 33 cents in drums; toluol, 29 cents in tanks and 31 cents in drums; and solvent naphtha, 25 cents in tanks and 30 cents in drums. As has been the case for some time past, virtually all trading is for prompt shipment.

Pronounced dullness has settled over the naphthalene market, all seasonal buying apparently being at an end. Flakes may be quoted at 5½ cents, works, and balls at 6½ cents, works. Some sellers are quoting slightly higher but such prices are nominal, and undoubtedly a substantial inquiry will bring out concessions from these interests. Phenol is featureless, with spot supplies going at 29 cents local warehouse, and futures at 25 cents, works.

Coke Oven By-Product

	Spot*
Per Gallon at Producers' Plants in Tank Lots	
Pure benzol	$0.25
Toluol	0.26
Solvent naphtha	0.25
Commercial xylol	0.28
Per Pound at Producers' Plants	
Phenol	0.27
Naphthalene flake	0.05½
Naphthalene balls	0.06½
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$2.45 to $2.55
Contract	
Pure benzol	Nominal
Toluol	Nominal
Solvent naphtha	Nominal
Commercial xylol	Nominal
Per Pound at Producers' Plants	
Phenol	$0.25
Naphthalene flakes	0.05½
Naphthalene balls	0.06½

*Spot distillates are subject to shading.

Ross Twist Drill Co., Detroit, has increased its capital stock from $25,000 to $50,000.

Coast Dull But Hopeful

Statistically General Business Is Good and Prospects Indicate Improvement—Building Operations Continue Active—Steel Buying Slack

SEATTLE, July 5.—The general business outlook on the Pacific Coast is not unfavorable although all markets are quiet. Iron and steel feel the effects of business depression. While some expect unfavorable conditions the remainder of the year, the majority of opinion leans to the belief that there will be a marked improvement within 60 days.

Seattle's bank clearings in June showed a gain of $10,000,000 over June 1923. Real estate transfers increased $250,000. June building permits were $2,094,350. This brings the total value of new construction in this city during the first half of 1924 to the record total of $16,892,950 compared with $13,793,493 for the same period last year. At the present rate the total for 1924 will be nearly $34,000,000 or about 50 per cent greater than 1923 when Seattle's totals were $22,974,720.

Great Northern officials announce that electrification of the 80-mile section spanning the Cascade mountains from Wenatchee to Skykomish will be the first step toward complete electrification of the western part of its line. The first unit will cost $4,000,000.

Grays Harbor Railway & Light Co. has asked a permit for water necessary for a $1,000,000 hydroelectric power development on the Queets river, Jefferson county. A dam 700 feet long and 50 feet high is proposed.

Los Angeles building permits during June exceeded May by approximately $1,000,000. Up to and including June 24 the permits issued were 2860, value $8,437,508 compared with 3116, valued at $7,580,861 for the first 24 days of May. June permits show a greater average valuation and include the $800,000 exchange building for the Southern California Telephone Co. and $700,000 addition to the county museum at Exposition park.

Pig Iron and Coke

There is no life to the pig iron market. Buying is at a minimum and foundries, with little work on hand, have sufficient stock for immediate needs. Several plants plan to remain closed after the holidays until conditions improve. The best grades of British iron are quoted at $31.50 and $32. Importers are hopeful but look for no great improvement until late in the summer.

Bars, Plates and Shapes

After a brief shutdown the local steel mill will resume next week. Business is quiet and present orders do not warrant steady operation. Both reinforcing and merchant bars are moving in small tonnages but with building and construction work holding up well, improved demand is expected. Prices are unchanged, local interests quoting in line with eastern producers.

Reports from reinforcing bar jobbers in Los Angeles indicate that while there has been a lull in the number of contracts awarded in the last two months the future is promising. One jobber states that May was the largest month in the history of his reinforcing bar department. Concrete bar awards for the week approximate 1500 tons and awards pending total 1200 tons.

Wholesalers state that light plates are in fair demand. Otherwise the market is quiet and demand is limited. The best price quoted on plates in this territory is 2.50c. The city has awarded the contract for the Duwamish river tunnel to the Puget Sound Bridge & Dredging Co. A subcontract for 100 tons of plates is pending. The Lake Cushman contract, involving considerable plates, also is pending.

The Wallace Equipment Co. during the week received the general contract for the Montlake, Seattle, bascule leaf bridge, involving 512 tons of structural steel. This company was low bidder at $160,452.95. C. L. Creelman, at $159,269.60, was low bidder for the substructure and the Westinghouse Electric & Mfg. Co. low bidder for the electrical machinery at $26,133. The Wallace Equipment Co., Seattle, also received the award for furnishing the structural steel for the Bogachiel bridge, Olympic National forest, involving 178 tons.

Dealers report that mills are all quoting 2.60c Seattle, for shapes, this being the best figure quoted a large house which has an inquiry for 200 tons.

Finished Materials

There is no change in warehouse prices. Jobbers state that June business was below the volume of May and much less than June 1923, when conditions were much more favorable. Trading is scattered although there is a fair demand for light sheets and plates, boiler tubes, bolts, nuts and rivets.

The Truscon Steel Co. has the contract for furnishing the steel sash for the new telephone warehouse at Seattle. Reports from Los Angeles states that the sash market in particular has recently been stabilized and price cutting in all lines has been nearly eliminated.

Local interests report an inquiry for 30 miles of 20-pound rail from the Orient received during the week. As far as known no one in this territory was able to quote on the order. No bar inquiry is coming from the Orient, that market being apparently eliminated for the present.

Old Materials

The market is weaker although it is so lifeless that a comparison is almost impossible. The largest buyer of steel scrap is purchasing in limited volume, quoting $9 gross for No. 1 quality. There is less demand as the steel plant is not running steadily. Buyers find themselves in position to be more discriminating. No. 1 cast iron is also lifeless, quotations ranging from $17 to $20 and demand being inactive.

Scrap Shows Better Tone

(*Continued from Page 72*)

ward tendency. Railroad lists closed July 1 are reported to have brought higher prices than those of the preceding month.

Quiet at Cincinnati

Cincinnati, O., July 8.—Trading in iron and steel scrap here is quiet. Demand is not sufficient to absorb the odd lots being pressed upon the market. Despite this condition, prices are holding at levels attained a week ago, when dealers marked up most grades about 50 cents a ton, to bring them in line with other centers. Dealers are buying freely and all recent railroad lists have been easily absorbed. Cancellations are fewer which would indicate consumers are approaching a normal basis of consumption. Some dealers are unwilling to sell large lots at present prices because of an expected higher market and apparently are accumulating considerable tonnage. Railroad offerings continue large, and forwardings from country dealers are of small consequence.

Holiday Calm at St. Louis

St. Louis, July 7.—Typical holiday conditions have prevailed in iron and steel scrap the past several days. Price changes have been immaterial, and demand reflects a willingness to wait. With numerous works closing down for midyear repairs and inventory, the recent hand-to-mouth buying has dwindled perceptibly, and no revival is looked for before the end of July. Interest centers chiefly in the speculative activities of dealers.

All varieties of steel specialties are being absorbed at slightly firmer prices, and the same is true of material for blast furnace. Rails for rolling are less freely offered than heretofore, and while the leading user is well supplied dealers' purchases have held the price firm. Cast grades hold steady under a fair demand, but little interest is manifested in rolling mill items.

Railroads continue to realize top prices on everything they offer, the list closed by the Missouri Pacific July 2 bringing premiums on a number of items. The Wabash offers a list of 1200 tons and 3500 tons are offered by the Missouri Pacific.

Lagging Market in South

Birmingham, Ala., July 7.—The iron and steel scrap market in the South is still lagging. Quotations have fluctuated little recently and grades which have been active during the past few weeks are still commanding most attention, including No. 1 cast, stove plate and some machine shop turnings. Improvement noted in other sections is not affecting the Birmingham market as territorial limitations are tightly drawn. Quotations show little change for the week.

Ingot Output

Aggregating 2,056,466 Tons in June Shows 571,795-Ton Decline

Production of steel ingots during June fell into lower ground, the estimated total declining from 2,628,261 gross tons in May to 2,056,466 tons. This is a loss of 571,795 tons or 21.7 per cent as shown by statistics compiled by the American Iron and Steel institute. The drop of May from April was 705,274 tons or 21.2 per cent. The decline of April from March was 854,407 tons or 20.4 per cent. On the percentage basis therefore, the June reduction exceeded that of May which in turn was greater than that of April. As previously pointed out, the reduction of output in April, with the possible exception of the period during the steel strike in 1919, was the greatest on record since 1917 when complete ingot figures first were compiled. March and April were months of 26 working days. May had 27 working days. June, however, had but 25 working days or two less than May and yet the tonnage loss figured on a percentage basis was the largest since the decline began. Actual production of companies reporting in June was 1,950,352 compared with 2,492,643 tons in May.

The calculated June production represents an average daily output of 82,259 tons, which compared with the daily rate of 97,343 tons in May shows a loss of 15,084 tons or 18.3 per cent. The decline of May from April was 30,870 tons or 24.1 per cent. On the basis of 311 working days in the year the daily production for June of 82,259 tons is equivalent to an annual rate of 25,582,549 tons. This is a 4,687,451 tons less than the annual rate based on the output for May and 14,287,451 tons less than the rate for April. Ingot production in June represented 40.89 per cent of the peak production of March, 1924.

The total ingot production of the United States for the first months of 1924 as reported by various producers was 18,635,138 tons. During the first half of 1923 the production of ingots totaled 22,133,827 tons or 15 per cent more than was made during the first six month just past.

Comparisons of steel ingot production by months for 1923 and for the first half of 1924, as compiled by the American Iron and Steel institute are presented in the accompanying table.

Studies Babbitt Metal

Slight increases in compressive strength and in brinell hardness are produced by the addition of copper, arsenic and zinc to white bearing metal alloys according to the bureau of standards, Washington. Tests were made both at ordinary temperatures, or 20 degrees Cent. and at 100 degrees Cent. The effects of all three impurities were studied with lead base alloys, and the effect of zinc and arsenic in the case of tin base alloys.

Automotive Trailer Corp., Chicago, has increased its capital stock from $125,000 to $350,000 and enlarged its board from 3 to 5 members.

Steel Ingot Production, 1923-24

94.84 Per Cent of Industry Reporting
Gross Tons

1923	Open-hearth	Bessemer	All other	Monthly production companies reporting	Calculated monthly production all companies	No. of working days	Approximate daily production all companies gross tons	Change in daily production per cent
Jan. ..	2,906,892	728,270	9,467	3,644,629	3,841,095	27	142,263	+ 7.7
Feb. ..	2,613,564	669,903	10,797	3,294,264	3,471,843	24	144,660	+ 1.7
Mar. .	3,046,309	799,525	12,841	3,858,675	4,066,680	27	150,618	+ 4.1
Apr. ..	2,974,579	772,485	13,933	3,760,997	3,963,736	25	158,549	+ 5.2
May ..	3,136,558	847,418	16,719	4,000,695	4,216,355	27	156,161	— 1.5
June.	2,821,239	737,845	15,483	3,574,567	3,767,256	26	144,894	— 7.2
Total 6 Mos.,	17,499,141	4,555,446	79,240	22,133,827	23,326,965	156	295,353	....
July ..	2,658,449	680,884	11,496	3,350,829	3,531,458	25	141,258	— 2.5
Aug. .	2,796,370	701,059	9,326	3,506,755	3,695,788	27	136,881	— 3.1
Sept.	2,562,771	613,709	8,602	3,185,082	3,356,776	25	134,271	— 1.9
Oct. ..	2,735,513	649,452	9,163	3,394,128	3,577,091	27	132,486	— 1.3
Nov. ..	2,348,361	616,335	9,309	2,974,005	3,134,321	26	120,551	— 9.0
Dec. ..	2,135,898	570,004	10,912	2,716,814	2,863,266	25	114,531	— 5.0
Total	32,736,503	8,386,889	138,048	41,261,440	43,485,665	311	139,825	
1924								
Jan. ..	2,766,534	667,032	12,577	3,446,143	3,633,639	27	134,579	+17.5
Feb. ..	2,902,641	695,905	14,085	3,612,631	3,809,185	25	152,367	+13.2
Mar. ..	3,249,783	706,801	15,260	3,971,844	4,187,942	26	161,075	+ 5.7
Apr. ..	2,575,788*	573,381	12,356	3,161,525*	3,333,535*	26	128,213*	—20.4*
May ..	2,060,896	425,099	6,648	2,492,643	2,628,261	27	97,343	—24.1
June	1,637,660	310,070	2,622	1,950,352	2,056,466	25	82,259	—18.3
Total 6 Mos.,	15,193,302	3,378,288	63,548	18,635,138	19,649,028	156	216,554	....

*Revised.

To Unify Cast Iron Pipe Specifications

A general program for unifying existing specifications for cast iron pipe into a consistent set of nationally recognized specifications was decided upon at a recent conference held by the American Engineering Standards committee. In a comprehensive paper, W. G. Hammerstrom outlined present practice not only of various organizations which have issued specifications, such as the American Water Works association, American Gas association and the American Society for Testing Materials, but indicated the more usual commercial departures from and extensions of these standards.

The scope of the unification work will include: Materials; dimensions; pressure ratings; methods of manufacture, including such new developments as centrifugal casting insofar as they may be necessary to secure satisfactory results in preparation of workable specifications; elimination of unnecessary sizes and varieties, consideration of the possibility of developing a co-ordinated scheme of metallic pipe and fittings applicable to all common mediums; and methods of making up joints insofar as they are determining as to the dimensional design of cast iron pipe. The types of cast iron pipe under standardization are to include flanged pipe; flanged and bell-mouth fittings and wall castings; pipe elbows, tees, Y's, return bends and other fittings not now included in standard lists; cast iron pipe for flanges or couplings; and soil pipe and other light types of cast iron pipe and fittings.

The work will be co-ordinated with that of the existing sectional committee on pipe flanges and fittings of the American Society of Mechanical Engineers, the Manufacturer's Standardization Society of the Valve and Fittings Industry and the Heating and Piping Contractor's National association. It was recommended that work be carried out by a sectional committee under the auspices and procedure of the American Engineering Standards committee and under the joint sponsorship of the American Gas association, the American Water Works association and the American Society for Testing Materials.

Orders totaling $800,000, which will keep the Joy Mfg. Co., Franklin, Pa., busy until fall, have been announced by the president of the company, J. F. Joy. This is one of the few plants in that city which is working at capacity. The company makes automatic loaders for coal cars.

European Trade Is Unsettled

Renewal of Political Wrangling Over Dawes Report Slows Up Business—Belgians and Germans Closing Steel Orders at Low Prices—South America Places Large Sheet Tonnage in Britain—Ferromanganese Reduced

Iron Trade Review Staff Cable

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LONDON, July 8.—Business in the iron and steel market is slowing up as a result of renewed political wrangling over the Dawes reparation plan.

English makers have reduced their price of ferromanganese for export 10 shillings ($2.17) and would make a greater reduction on substantial orders from American buyers. British pig iron prices also are easier. Large orders for galvanized sheets for South America are noted among recent transactions, and Australia also appears as a heavy buyer of tin plate from producers in Great Britain.

Brussels reports that Belgian mills have taken heavy orders for steel bars for shipment to India at £6 0s 6d ($26.15), and beams at £6 5s ($27.12) f.o.b. Antwerp. Berlin reports steel bars sold down to £6 ($26.04) f.o.b. Mills are still closing orders for sheets and strips at recent low prices.

Changes in British market prices this week bring the following products to the levels as quoted: Ferromanganese £16 10s ($71.71); standard rails £8 ($34.72).

British Steel Trade Severely Hurt by Continent

European Staff Special

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., June 27.—Difficulties of pig iron makers tend to increase. Two furnaces have been extinguished in the Midlands and others may have to be put out of action in the North of England, where stocks are accumulating and exports are falling off. Shipments from the Tees to date are 25,000 tons below those of May, and cheap French pig iron well below local prices again is available. Local makers cannot compete with basic material which has been imported for some time. The £4 10s ($19.53) figure for No. 3 G. M. B. is being shaded, from 6d ($0.11) to 1s ($0.22) a ton less being accepted. Hematite is also easier at £4 17s ($21.04). In Barrow the demand has not expanded in accordance with expectation, although some mills have resumed there, and the 12 furnaces operating are sufficient for all requirements, although furnacemen have resisted further reductions.

A matter of great importance to the

Sterling—$4.34

blast furnaces is reversion to the old practice of selling coke according to quality, with full regard to analysis. The new basis is £1 0s 6d ($4.45) per ton for an average quality and a reduction of 7s ($1.51) or 8s ($1.73) from the prices charged in the earlier part of the year. Firms claiming over this price must sell their material on its merits. Users are still pressing for lower prices, and are naming figures much below £1 ($4.34) per ton. Spiegel has been reduced £1 ($4.34) per ton, making the price £8 ($34.72). Ferromanganese is unchanged but with small business.

Belgian billets are slightly firmer this week, the general quotation being £7 ($30.38) delivered, though isolated cases are quoted of lots sold below this price. One large maker of steel sheets for galvanizing has put out ten of his furnaces, because he finds it possible to buy Belgian steel much more cheaply. These works are situated near the Welsh ports, and, although the steelworks are close at hand, the price paid for foreign material leaves a good margin, increasing his profits on sheets and supplying a weapon with which to beat down prices of domestic firms.

The following are a few typical prices quoted to a Birmingham engineer this week on continental steels of French or Belgian origin:—Joists £6 12s 6d ($28.75) or £7 17s 6d ($34.17) delivered against the English price of £9 12s ($41.66), bars £6 15s ($29.29) f.o.b. Antwerp, or £8 ($34.72) delivered against £9 12s 6d ($41.77) plates £8 5s ($35.80) Antwerp or £9 10s ($41.23) delivered against £10 5s ($44.48); sheets ⅛ inch thick £8 17s 6d ($38.51) Antwerp or £10 2s 6d ($43.94) delivered against £12 ($52.08) English price.

In view of the great activity of building, a large quantity of these cheap joists are being utilized for building structures. It is significant that recent tonnages, covering some months, in various building contracts have not exceeded 10-ton lots except in rare cases. One engineer found

European Steel Delivered to World Ports

Gross Tons—Prices Last Reported

	U. S. A. North Atlantic Ports	U. S. A. Pacific Ports and Vancouver	Buenos Aires, Rio de Janiero, East Coast of South America	Valparaiso, West Coast of South America	Calcutta, Bombay and Indian Ports	Singapore and Straits Ports	South African, Australian, New Zealand Ports	Hongkong South China	Shanghai and North China	Japanese Ports
*Foundry No. 3 Pig Iron, Si. 2.50-3.00	$27.40	$23.25	$23.65	$25.80	$24.25	$27.50	$28.00	$28.00	$28.55	$28.00
*Hematite Pig Iron, Phos. 0.02-0.05	24.20	25.05	25.45	27.60	26.00	29.25	29.75	29.75	30.30	29.75
Standard rails	39.75	40.85	41.25	43.25	40.50	43.75	44.25	44.25	44.80	44.25
Merchant bars	1.51c	1.58c	1.56c	1.61c	1.49c	1.69c	1.71c	1.71c	1.73c	1.71c
Structural shapes	1.51c	1.58c	1.56c	1.61c	1.49c	1.69c	1.71c	1.71c	1.73c	1.71c
Plates, ship, bridge and tank	1.68c	1.75c	1.73c	1.78c	1.66c	1.86c	1.88c	1.88c	1.90c	1.88c
†Sheets, black, 24 gage	2.64c	2.76c	2.84c	2.79c	2.66c	2.86c	2.88c	2.88c	2.90c	2.88c
†Sheets, galvanized, 24 gage corr.	3.61c	3.73c	2.81c	2.76c	2.63c	2.85c	2.85c	2.85c	2.87c	2.85c
Plain wire, base	2.46c	2.53c	2.51c	2.56c	2.44c	2.66c	2.66c	2.66c	2.68c	2.66c
Galvanized wire, base	2.84c	2.91c	2.89c	2.94c	2.82c	3.02c	3.04c	3.04c	3.06c	3.04c
Wire nails, base	3.10c	3.17c	3.15c	3.20c	3.08c	3.28c	3.30c	3.30c	3.32c	3.30c
†Tin plate, base box	$5.21	$5.25	$5.40	$5.35	$5.22	$5.36	$5.39	$5.39	$5.42	$5.39

The foregoing prices are for delivery by cargo liners in ordinary quantities 100 to 1000 tons, c.i.f. to port of destination, but *without* customs duties, unloading charges, dock dues, commissions, etc., at destination. Owing to lack of uniformity in ocean freight rates, cargo shipments by tramp steamers may show considerable variation from these quotations. Pig iron and rails quoted dollars per ton, finished steel in cents per pound, tin plate in dollars per box. Quotations are for *Continental* iron and basic-bessemer steel, except as indicated; for British material add $4.50 to $6.00 per ton.

†British material, basic open-hearth. *British, Middlesbrough.

Current Iron and Steel Prices of Europe

Prices Converted into Dollars at Rates of Exchange, July 7

	British Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgian and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Ports	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d			Francs		Francs		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$19.10	4 8 0*	$18.56	360	$18.18	400	$22.79	5 5 0
Basic	18.45	4 5 0	19.59	380	17.50	385	26.04	6 0 0
Basic-bessemer	21.16	4 17 6†	18.56	360	17.27	380	22.79	5 5 0
Hematite, Phosphorus 0.02-0.05	20.94	4 16 6	22.68	440	.....	.....	24.95	5 15 0
SEMIFINISHED STEEL								
Billets	$30.38	7 0 0	$25.26	490	$25.45	560	$26.58	6 2 6
Wire rods	47.74	11 0 0	36.09	700	32.95	725	30.38	7 0 0
FINISHED STEEL								
Standard rails	$34.72	8 0 0	$30.93	600	$34.09	750	$30.38	7 0 0
Merchant bars	1.69c	8 15 0	1.30c	560	1.25c	605	1.28c	6 10 0
Structural shapes	1.55c	8 0 0	1.30c	560	1.23c	595	1.33c	6 15 0
Plates, ship, bridge and tank	1.74c	9 0 0	1.70c	730	1.53c	740	1.43c	7 5 0
Sheets, black, 24 gage	2.52c	13 0 0	2.68c	1,150	2.68c	1,300	2.61c	13 5 0
Sheets, galvanized, 24 gage, corrugated	3.54c	18 5 0	4.08c	1,750	4.95c	2,400	3.54c	18 0 0
Bands and strips	2.13c	11 0 0	1.92c	825	1.91c	925	1.97c	10 0 0
Plain wire, base	2.32c	12 0 0	2.21c	950	2.27c	1,100	1.97c	10 0 0
Galvanized wire, base	3.00c	15 10 0	3.03c	1,300	2.78c	1,350	3.35c	17 0 0
Wire nails, base	2.81c	14 10 0	2.56c	1,100	2.37c	1,150	2.76c	14 0 0
Tin plate, base box 108 pounds	$4.91	1 2 7½	.....	.....	.....	.....	$6.29	1 9 0

Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$19.10	4 8 0	$19.33	375(2)	$18.41	405	$22.77	99
Basic pig iron	18.45	4 5 0	18.85	385(1)	17.50	385	25.42	110.50
Furnace coke	4.56	1 1 0	7.73	150	8.64	190	7.36	32
Billets	30.38	7 0 0	24.49	475	25.68	565	25.30	110
Standard rails	1.69c	8 15 0	1.34c	575	1.55c	750	1.36c	130
Merchant bars	1.74c	9 0 0	1.34c	575	1.27c	615	1.30c	125
Shapes	1.74c	9 0 0	1.34c	575	1.25c	605	1.25c	120
Plates, ship, bridge and tank	1.84c	9 10 0	1.70c	730	1.56c	755	1.44c	138
Sheets, black, 24 gage	2.61c	13 10 0	2.68c	1,150	2.73c	1,325	2.29c	220
Sheets, galvanized 24 gage, corrugated	3.69c	18 0 0	4.08c	1,750	5.05c	2,450	4.90c	470
Plain wire	2.32c	12 0 0	2.21c	950	2.27c	1,100	1.77c	170
Bands and Strips	2.32c	12 0 0	1.92c	825	1.85c	900	1.72c	165

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £1 1s 0d ($4.50) f. o. b. Ferromanganese, £16 10s 0d ($71.61) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

that from 50 to 60 per cent of his contracts did not exceed 10 tons of steel. The loss of this joist business is a serious matter for British mills. Among the large orders pending is an inquiry by the East Indian railway companies for bridge work calling for about 57,500 tons of steel. It is expected that the Americans will be keen competitors for this contract.

Foreign competition has developed in weldless tubes. In a recent inquiry British makers quoted £40 ($173.60) French £35 ($151.90) and German £29 ($125.96). There are bitter complaints among makers that this undercutting is facilitated by the fact that the German works have reverted to 11 hours working, whereas the British mills are obliged to adhere strictly to the 8-hour system and are therefore hopelessly beaten in many contracts. The British sheet mills are now keenly seeking orders, the large contracts placed some time ago approaching exhaustion with little business in sight.

The Staffordshire iron trade goes from bad to worse. One of the oldest concerns in Staffordshire has closed down the firm of J. & C. Holcroft, Ltd., after continuous operations for over 100 years. Other firms of ancient repute are stopped, and are unlikely to recommence. The makers of best iron, however, continue busy, notwithstanding the high price charged of £15 ($65.10) per ton. The nut and bolt trade continues to take good tonnages of Belgian No. 3 iron, which can be bought at £8 5s ($35.80) against the Staffordshire figure of £11 10s ($49.91) for nut and bolt iron.

The galvanized sheet trade continues in a state of cheerful activity, with good orders coming from most foreign markets. The tone has decidedly improved, and it is now difficult to obtain delivery before October. For September shipment the higher price is invariably demanded, but on forward orders £18 5s ($79.20) appears to be the recognized standard.

In the tin plate trade buying shows a spirit of much more confidence, consumers having, apparently, decided that lower prices are not likely this year. Makers have good order books, and, in many cases are insisting on the round figure of £1 3s ($4.99) as against the basis of £1 2s 7½d ($4.90). Tin plate bars are unchanged at the fixed minimum of £8 12s 6d ($37.63) less 7s 6d ($1.62) rebate.

Steel scrap is quiet. A few sales have been made in the Midlands at £4 2s 6d ($17.90). Some lower offers by consumers have not been favorably received. Imports into South Wales have been unusually large lately, one noteworthy consignment being 2000 tons of steel scrap from Calcutta. Cargoes from the Continent have been unusually numerous, most of them consigned to well known South Wales steelworks.

French Selling Held Back by Uncertainty

European Staff Special

Office of IRON TRADE REVIEW,
23 Rue de la Bienfaisance

Franc—$0.053

PARIS, June 27.—Activities of the French iron and steel market are reduced to hand to mouth transactions. The coming season is generally one of reduced activities. Export business is calm, Belgian and Luxemburg prices being more attractive to foreign buyers. However, De Wendel & Co. have been awarded an order covering 3400 metric tons of standard rails for the government of Tunis at 574.40 francs per metric ton ($30.50) delivered. It is interesting to note that the highest bid on this tender was 750 francs ($39.60). This shows

the wide range of rail prices at the present time and this price should be considered exceptionally low.

Pig iron production in France continues to be satisfactory owing to large stocks of furnace coke still available. Receipts of reparations coke have not reached the average before the strike in the Ruhr coal mines, the daily average since the beginning of the month being somewhat less than 42,000 metric tons. The price of reparations coke has remained at 150.75 francs per metric ton ($8.30) since the organization of the new distributing syndicate known as the Orca. This price is considered too high by consumers, and French furnace coke can be obtained at from 142 francs to 150 francs ($7.51 to $7.93). There is also a certain amount of uncertainty as to future understandings with German iron and steel magnates in the Ruhr. In the meantime the present agreements appear to be extended until July 15. This has resulted in a certain demand from the part of foundries anxious to be assured of a minimum tonnage of pig iron in view of possible mishaps. Foundry pig iron has remained at an average of 375 francs ($19.85) per metric ton, any tendency toward an increase being checked by lower prices offered by British furnaces. In order to compete on export markets against British pig iron, Lorraine furnaces must reduce their price to about 325 francs ($17.20) at the furnace, or 50 francs a ton ($2.65) lower than the average quotation. Belgian foundry pig iron is offered at about 400 Belgian francs ($18.40) per metric ton f. o. b. Antwerp; the Lorraine product is offered at 410 Belgian francs ($18.80) f. o. b. Antwerp. The hematite pig iron situation in France is satisfactory, prices ranging from 440 to 450 francs ($23.25 to $23.75) per metric ton. These low prices render the introduction of British hematite in France difficult.

In the steel market a large number of small orders have been placed lately in the home market. Certain mills have extended deliveries to three or four months, while others are soliciting orders. As a result prices are being maintained at their recent levels with a rising tendency, especially in semifinished products. Basic bessemer billets range from 450 to 480 francs ($23.75 to $25.40) per metric ton, the extra for open hearth quality being about 40 francs ($2.15) per metric ton. Merchant bars are about 575 francs per ton (1.38c per pound) for orders of from 50 to 100 tons. The plate and sheet situation is firm and 5-millimeter plates have increased from 730 francs per ton (1.76c per pound) to 760 francs (1.83c). Sheets No. 24 gage are being quoted by the majority of producers at 1150 francs (2.77c).

In the wire products department, demand is decreasing and prices are dropping. Plain wire is now 950 francs per ton (2.28c per pound), or 50 francs Wire nails are about 1050 francs (2.56c).

Germany Selling Its Steel Below Cost

European Special Service

BERLIN, June 24.—Owing to decreasing demand in the domestic market in Germany, iron and steel producers and merchants are endeavoring to increase export business and are cutting prices to meet Belgian and Luxemburg competition. They are reported selling below cost. Merchant bars have been sold to the Scandinavian states at £6 15s per metric ton (1.33c per pound) f.o.b. Northern sea ports. Plates, sheets, bands and wire rods have been exported to Scandinavia and South America which appear to be Germany's best customers. Rails are sold at about £7 ($29.60) per metric ton to South America, South Africa and Java, but German makers are meeting keen competition from Great Britain. Fried, Krupp A. G., Essen, has recently succeeded in obtaining a rail order for Turkey which is estimated to be worth about 2,000,000 rentenmarks ($480,000). Some new export orders for locomotives have been booked by German works. In the first four months of this year, 195 German locomotives were exported, compared with 254 units in the corresponding period of the preceding year. The Germania-Werpf at Kiel is reported to have booked an order for three steamers for the Standard Oil Co. Demand from the border states has subsided because of unsatisfactory economic conditions. Unsold stocks in these states are offered at about 25 per cent below German prices. Exports to Russia have practically ceased owing to the breaking off of relations with the soviets. The Ruhr authorities have reduced the export duty on Solingen cutlery to 2¼ per cent ad valorem, as a result of troubled economic situation.

The home market is dull and the demand scarce. The works are selling at low prices and merchant bars have been offered as low as 110 rentenmarks per metric ton (1.19c per pound) while the cost of production is said to average 140 rentenmarks (1.46c). Owing to the financial crisis in Germany, money is short, prices tend to decline still further and several works are reducing their output. The Dortmunder Union is interrupting its production of billets and contempates following the same course in its rolling mills. The August Thyssenhuette at Hamborn has also reduced its output. The Deutsche Werke report that they are compelled to reduce their operations, as production under present circumstances causes a loss. Coal mines in the southern Ruhr district claim they are not in a position to pay the increase in wages of 15 to 25 per cent above prewar wages and will have to close down if the miners do not accept lower wages. Only one works is reported to be on the verge of re-opening, the II seder Huette.

Belgian Production Now Near Record Point

Brussels, June 27.—May 31, 47 blast furnace stacks were in operation in Belgium, the same as April 30. Pig iron production gained again during May, beating all other records with 246,520 metric tons, or 7000 tons in excess of April figures. Furnace coke supplies continue to be plentiful and the production of coke in May was 356,810 metric tons, 1400 tons more than during the preceding month. The highest point was reached in January when 375,800 tons were produced.

Output of steel ingots during May was the highest since the war and exceeded April production by 10,000 tons. The May output was 243,540 metric tons. Production of steel castings was 6980 metric tons against 7110 tons in April. The production of finished steel products was satisfactory and reached 203,700 metric tons, 8000 tons more than in April but still about 3000 tons less than the highest mark reached in March.

The above high figures are due in great part to export orders booked in February and March. Since then, demand has somewhat slackened and could hardly absorb much more tonnage than was produced in May. Production statistics are as follows:

	Metric Tons			
Mon. ave.				
1913	207,058	205,552	154,922	
1921	115,913	73,032	65,586	69,342
1922	225,624	133,685	130,304	117,499
1923	346,366	182,344	188,115	161,115
1924				
January	375,800	208,980	230,970	200,900
February	351,480	205,930	225,910	192,820
March	367,360	230,490	241,050	206,470
April	355,400	239,530	240,740	195,670
May	356,810	246,520	250,520	203,700

British Quote on Export Inquiry from America

Birmingham, Eng., June 27.—In response to some special American inquiries for high class products produced in the Birmingham area the following quotations are finished: Cold-rolled shafting ¾ to 6-inch, packed in cases and delivered f.o.b. Liverpool, £16 ($69.44) per ton for 10-ton lots. The bars from 3-inch upward would be turned in addition to being rolled, but without extra charge. Various extras, however, are charged for smaller sizes as follows:—¾ to ⅝ £2 ($8.68) per ton; ⅝ to ½ inch £4 ($17.36); ½ to 5/16 inch £5 ($21.70); 5/16 to ¼ inch £6 ($26.04); below ¼ inch, £7 ($30.38). Where a works quotation is preferred a reduction of £1 ($4.34) per ton may be allowed.

Sheets made of Staffordshire pure puddled iron 24 gage are quoted £21 ($91.14) f.o.b. or £20 ($86.80) at works for 50-ton lots. The standard size in view is a length not exceeding nine feet and a width of 3 feet. For the same class of material galvanized, one quotation of £29 ($125.96) f.o.b. was received, and a second quotation for heavily coated quality, £30 15s ($133.45) per ton delivered f.o.b. Liverpool in bundles, 10-ton lots and upwards. Terms net prompt cash against invoice.

Warren Pipe Plant One of Oldest Producers

Taking of an option on the plant of the Warren Foundry & Pipe Co., Phillipsburg, N. J., by the Replogle Steel Co., represents a definite step in what probably will lead to the passing of not only the largest independent cast iron pipe company in the country, but one of the oldest, about which is entwined much of the romance and development of the cast iron pipe industry in this country. As noted in last week's issue of IRON TRADE REVIEW, the Replogle interests have taken an option, which expires late in August, specifying the payment of $4,000,000 for the property or the equivalent of $400 a share.

Established in 1856 at Phillipsburg with a capital of $200,000, the company largely has been under control of the descendants of the original founders. In fact it is stated that fully three-quarters of the stock still is in the hands of these interests. In all there are approximately 200 stockholders, the great majority of whom have relatively small holdings. The present capital is $1,000,000, representing 10,000 shares of $100 par value each.

While organized originally to carry on a general foundry business, the company within a few years gave over its production almost exclusively to the manufacture of cast iron pipe. The first pipe was produced in 1857 and was of small sizes, made in green sand and cast on inclined banks, as was the custom in those days. Shortly afterward, the manufacture of large pipe was undertaken, the molding and casting being done vertically in dry sand. This it is understood, was the first time this method was employed in this country and proved so successful that all sizes were handled in this manner. The company then began to specialize in pipe.

The success of this early work was attributable in no small measure to the skill of two English pipe makers, John Firth and John Ingham, who came with the company as workmen in 1857, and remained for a number of years until their death.

The company originally occupied a six and one-half acre site, and comprised five buildings including a foundry, 112 by 132 feet and a machine shop, 72 by 402 feet. The property, enlarged by successive stages, now comprises a site of 21 acres and a plant consisting of more than 27 main buildings. The company employs more than 600 men and has an output of 300 tons daily.

Many of the official personnel and employes have been with the company a number of years. The president and treasurer, W. H. Hulick, New York City, son of one of the founders, has been associated with the company 40 years. For 10 years, he has been president, 24 years vice president, and six years, the first of his connection, as director only. Other executives long with the company are: A. D. Chidsey, vice president and assistant treasurer, Easton, Pa., and A. L. Reiley, secretary, Phillipsburg, N. J.

The directors are Edward J. Fox, W. H. Walters, Lee Clymer, Clayton Hackett, Chester Snyder, A. D. Chidsey, and W. H. Hulick. S. B. Brown is plant superintendent and J. H. Morrison, general sales manager.

The company was incorporated as the Warren Foundry & Machine Co. until recent years when the name was changed to the Warren Foundry & Pipe Co.

Denies Fixed Price Has Harmed Buyers

Washington, July 8.—The Cleveland Metal Products Co., Cleveland, in reply to complaint of the federal trade commission charging enforcement of uniform resale prices on stoves and heaters by illegal methods, has denied the charge. The company's answer filed by Treadway & Marlatt, attorneys, stated that it has been advised and believes that whatever it has done in suggesting resale prices and the adoption of such prices by dealers is a legal and lawful means of doing business; that it does not suppress competition among retailers, and that the public has not been injured. The firm contended that, to the contrary, the public has been benefited and its convenience served, and that competition in stoves and heaters has been promoted and not lessened and restrained by the company's policy.

The firm admitted, in answer to complaint of the commission that it prints a price list on its stoves and heaters and also the discounts at which they are sold to dealers. The commission was informed that this list serves the dealer both as a buying list and as a guide to him in establishing his resale prices for such stoves and heaters. The firm denied that it enlists and secures the support and co-operation of retail dealers in enforcing any system as to resale prices, or that it has co-operated with them in preventing other retail dealers handling its products from selling the same at less than the resale prices suggested.

The American Piston Casting Co., Jenkintown, Pa., has been elected a member of the Philadelphia Foundrymen's association Inc.

British Empire Works To Be Idle Indefinitely

Toronto, Ont., July 7.—J. E. McIwig, vice president of the British Empire Steel Corp., has issued a statement announcing the closing down of the rail mill and other plants at Sydney. The rolling of the rails contracted for by the Canadian national railways has been completed, and a tonnage of rails for stock also having been rolled, the company has no further orders or prospects of any for some months. Two batteries of coke ovens will operate until July 15, after which date only one will be operated. Blast furnaces No. 1 and 8 will operate on basic iron until July 15, when No. 1 will be blown out and No. 8 will be operated on foundry iron until July 21. All open-hearth furnaces will operate to capacity until July 15, when they will suspend. The blooming mill, billet mill, rod, bar, wire and nail mills will operate until July 19. This program means that after July 19 the entire plant will be closed down, with the exception of one battery of coke ovens and No. 8 blast furnace. The amount of coal to be mined will be reduced by about 60,000 tons per month.

Operate Without Accident

Pittsburgh, July 8.—At seven plants of the American Sheet & Tin Plate Co., no time was lost during May because of accidents. These plants are: Cambridge works, Cambridge, O.; Dover works, Dover, O.; Crescent works, Cleveland; Leechburg works, Leechburg, Pa.; Pennsylvania works, New Kensington, Pa.; Old Meadow works, Scottdale, Pa., and Wellsville works, Wellsville, O. Each of six others had but one lost-time accident, namely the Chester works, Chester, W. Va.; New Castle Works, New Castle, Pa.; Roll & Machine works, Canton, O.; Sabraton works, Morgantown, W. Va.; Farrell tin plate mill, Farrell, Pa.; and the Wood works, McKeesport, Pa.

Issues House Organ

Current News is the name of a house organ issued by the Electric Controller & Mfg. Co., Cleveland, the first number of which is just out. Inasmuch as electricity is used everywhere and in every industry, its contents are diversified widely and much interesting matter is available. It is issued in the form of a four-page newspaper and the initial issue carries a wide variety of interesting information.

Refractory Sales

Limited To Repair Needs—New York Light Prices Steady

Pittsburgh, July 8.—Current repairs are practically all that are causing orders to be placed with the refractory manufacturers in this territory, although occasionally a relining for a blast furnace or open-hearth furnace is specified against contracts with regular sources of supply. New construction is limited although two or three blast furnace propositions still are pending, such as the Central Steel Co., Massillon, O., the Burden Iron Co., Troy, N. Y., etc. Work on the former is to proceed at once, as announced last week, and the order for the brick probably will be placed shortly involving about 500,000 for the stack itself, a similar quantity for the stoves, and a large quantity for the by-product coke ovens in connection. The usual current orders call for single carloads, or up to 50,000 brick at a time, with an occasional order for 200,000 brick over a stipulated period. Operations among refractory makers are not improving any. Some are on a lower scale than two or three weeks ago due to the restricted buying rate on the part of their customers. These latter are on curtailed operating schedules themselves, and their consumption of brick accordingly is lessened to perhaps about 40 or 50 per cent of normal for this period. The prices are holding fairly well with Pennsylvania No. 1 fire clay brick at $40 to $43. Some medium duty grades are offered at less than $40 in lieu of strictly No. 1 brick, but these are not affecting the general market minimum of $40. The same thing is true of Pennsylvania silica brick where $38 is the general market, with $36 available now and then from small makers anxious for trade. Those quoting the $38 figure, however, are taking a firm stand, not wishing to increase their production losses. Magnesite brick demand is limited but chrome brick is moving fairly well on contracts with a few spot market transactions involving a carload or two at a time at from $45 to $47.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$40.00 to 43.00
Pennsylvania, No. 2	33.00 to 37.00
Ohio, No. 1	40.00 to 43.00
Ohio, No. 2	35.00 to 36.00
Illinois, No. 1	45.00 to 48.00
Illinois, No. 2	42.00 to 44.00
Kentucky, No. 1	40.00 to 41.00
Kentucky, No. 2	35.00 to 37.00
Missouri, No. 1	38.00 to 40.00
Missouri, high grade	48.00 to 50.00
Maryland, No. 1	42.00 to 48.00
Maryland, No. 2	38.00 to 40.00

SILICA BRICK

Pennsylvania	$38.00
Chicago	47.00
Birmingham	48.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	$65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	$45.00 to 47.00

Valley Mills Showing Much More Activity

Youngstown, O., July 8.—Steel mill operations in the Mahoning valley are on a slightly improved basis this week. Sheet mills are scheduled at 39 per cent of capacity, representing 47 active units. For the week, preceding the Fourth the rate was 41 per cent. The Trumbull Steel Co., the Youngstown Sheet & Tube Co. and the Republic Iron & Steel Co. are operating eight each, the Mahoning Valley Steel Co., the Sharon Steel Hoop Co. and the Newton Steel Co. six each and the Thomas Sheet Steel Co. five.

Independent steelworks activity is curtailed owing to repair work on a blooming mill at one plant. Twenty-seven per cent of capacity is engaged. The Youngstown Sheet & Tube Co. is charging eight units and the Trumbull Steel Co. and the Sharon Steel Hoop Co., three each, a total of 14 of the 52 open hearths in this district.

Activity has been resumed at the bessemer rod and wire department of the Youngstown Sheet & Tube Co. which in addition is operating one merchant mill, a plate mill, five pipe and three skelp mills. It also blew in one stack at the East Youngstown group. The Republic Iron & Steel Co. has four pipe and four finishing mills engaged. The Trumbull Steel Co. has 19 hot tin and two hot strip mills active. The Sharon Steel Hoop Co. has four hot strip mills scheduled. The A. M. Byers Co. is working 88 puddling furnaces, compared with 46 a week ago.

Unchanged at Chicago

Chicago, July 8.—For the second week in succession steel ingot production in the Chicago district remains at about 40 per cent. No more steel works blast furnace stacks have been blown out, and of the 30 operated by the two leading steelmakers 13 continue in blast.

Canton Plants Busier

Canton, O., July 8.—The United Alloy Steel Corp. has resumed production this week with 24 mills. A number of the mills have been down for the past month and all of them for a week, the situation being the same at both the Stark and also the South division.

The Central Steel Co., Massillon, O., lighted two additional open-hearth furnaces this week, bringing the number active to six. Only one furnace remained down. Thirteen sheet mills of the Massillon rolling mill division resumed operation Tuesday. The mills have been idle and others have been operating irregularly for some time.

Coke Interests Consolidate

Pittsburgh, July 8.—Under a new charter granted recently by the state department at Harrisburg, the Hillman Coal & Coke Co. has merged with that corporation five subsidiary companies directly connected with the operating end of the coal industry. The merged company will operate under the name of the Hillman Coal & Coke Co., with a capitalization of $8,752,000.

The companies taken in by the parent corporation are the Diamond Coal & Coke Co., the Merchants' Coal Corp., the Jenner Quemahoning Coal Co., the Pittsburgh & Baltimore Coal Co., and the Naomi Coal Co. The offices of all the companies have heretofore been together in the First National Bank building.

A. B. Sheets, vice president of the Hillman and Diamond companies, stated that the action was one of consolidation and did not represent any acquisitions not heretofore controlled by the company. The officers of the Hillman Coal & Coke Co. are: Chairman of the board of directors, J. H. Hillman Jr.; president, Tracey W. Guthrie; vice presidents, A. B. Sheets and Ernest Hillman; vice president and secretary, Thomas Watson; treasurer, R. W. Flenniken; assistant secretary, J. M. Leithead. The officers compose the directorate of the corporation.

Segregates Car Interests

Chicago, July 8.—All of the car building and manufacturing interests of the Pullman Co. at Pullman, Ill., and Michigan City, Ind., have been segregated within the newly-organized Pullman Car & Mfg. Corp., with a capital of $50,000,000. All of the corporation's stock is held in the treasury of the Pullman Co. and no distribution of the latter's stock or assets is contemplated. The program places all operating functions of the organization within the Pullman Co. proper and all manufacturing, repair and other allied functions within the Pullman Car & Mfg. Corp. D. A. Crawford is president of the corporation and W. N. Oehm works manager.

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Pig Iron Decline Unequaled

DURING April, May, June and July one year ago, new high point records were being made in pig iron production. During the first three months of the corresponding period this year, other records of an entirely opposite character are being established. For shrinkage of operations the past three months have been extraordinary. Since March, which was the banner month of 1924, a total of 109 blast furnaces has been blown out or banked. June 30 recorded 160 stacks operating, compared with 269 on March 31. Consequently, only 59.5 per cent as many stacks were making iron in June as in March and only 49.5 as many as in May, 1923, the high point production month. The precipitate drop of 109 furnaces in three consecutive months was the third greatest in history, being exceeded only by a fall of 175 furnaces from October to January, 1907, and by a decline of 114 stacks from February to May, 1919. The latter was due to the reaction immediately following the close of the war.

From March to June average daily production of pig iron dropped from 111,787 tons per day to 67,379 tons per day, a loss of 44,408 tons, or 39.7 per cent. This recorded the greatest three-month decline in history. Iron during June was being produced at approximately 40 per cent of the March rate and only 35.6 per cent of the historic record of last May. On an annual basis the June output was at the rate of 24,500,000 tons. In March the rate was 40,600,000 tons and in May, 1924, it was 45,500,000 tons per year.

How much further production will shrink is problematical. Summer months always are low production months and additional curtailment probably will be made during July and August. The record of stacks blown out during June, however, indicated that the period of most drastic curtailment has passed. Although stocks of merchant iron are unusually heavy, a quickening of pace of industry in general is likely to call for an immediate increase in blast furnace activity

Hot House Prosperity Improbable

REPORTS are rife that in order to boom business just prior to the coming presidential election the stock market is to be driven up, grain prices are to be advanced to win the favor of the agricultural community and the railroads, which have been sharply restricting their buying, are to place considerable business late in the fall.

A sane and searching view scouts these reports. A stock market forced up artificially would collapse so soon as support were withdrawn, and the second state would be worse than the first. The farmer who has been following LaFollette loyally is not to be weaned away from him by a few cents more for his corn or wheat. From the pure mechanics of the thing, it is doubtful if a bull market in either stocks or grain could be manipulated.

As to railroad buying, the carriers are not so wedded to any political party as to make them economically absurd. Rails and track fastenings are not placed until mid-winter or taken until early spring. Freight and passenger equipment contracted for at a high rate last winter and spring is now coming on to swell the total of idle equipment, and further purchasing is out of the question.

If the stock market, in its untrammeled state, is a barometer of business conditions six month hence, as some contended, then it will be at least the first quarter of 1925 before a decided upturn in the industrial field can be expected. The outstanding figures of the iron and steel industry are practically unanimous in believing recovery is in progress but will be slow. Any lasting and benefitting improvement must have a firm foundation, and certainly an artificial bull market in stocks, which would be reflected in speculative commodity buying, would not come within this category.

Good Railroad Buying Promised

ONE of the most curious phenomena of the present financial situation is the persistent strength of railroad securities in the face of falling railroad earnings. During May the net income of Class 1 roads stood at $60,595,455 a drop of 33 per cent from

that of 12 months before. The decline in gross earnings was 12.9 per cent which correspond roughly with the recession in car loadings from last year.

Yet the prices of listed issues of railroad companies have continued their upward swing. This reflects three considerations. Money is extraordinarily easy and is flowing into railroad securities and other dividend paying issues; investors have faith in the future of American roads; fears of hostile railroad legislation largely have faded with the adjournment of congress.

The iron and steel and metalmaking industry is vitally interested in the state of prosperity of its best customer—the railroads. At the moment the transportation systems are feeling the pinch of industrial recession. Car loadings are running behind both the corresponding weeks of 1923 and of 1920. Of necessity the roads must economize in their expenditures.

The retrenchment policy inevitably is affecting the iron and steel and related industries. But the roads are not likely again to allow their properties and equipment to run down at the heels. They are too keenly alive to the necessity of keeping abreast with the country's needs, to stand still for long. Even in a year of economy they already have authorized the expenditure of some $750,000,000 for improvement against approximately $1,000,000,000 so spent in 1923. This year's amount seems small only in comparison with last year.

Wise railroad executives may take advantage of the present rise of credit of the systems and the easy money rates to raise finds for needed improvements. Moreover, material prices are attractively low in many instances. Owing to prevailing economic conditions railroad buying may not reach the high levels of 1923. It should, however, measure well up to the normal average, and be far ahead of the war years and those immediate following.

Studying the World's Power Problems

SIGNIFICANT because of its scope, the great power conference being held in London during the first two weeks of July embodies possibilities not fully appreciated, even in the countries most actively participating in the event. The United States is represented by several hundred distinguished manufacturers and engineers, and 30 other countries likewise are represented by their leading authorities on power. There fore it may be said that the world's experts on power generation and distribution are assembled for the first time in history for the exchange of information.

Regardless of what direct and tangible results are derived from the meeting, the delegation from each nation is sure to profit from its association with those of other nations. Each country will receive in proportion to what it contributes to the general fund of knowledge. The United States gives to the conference its experience in developing large central stations, its data on the use of pulverized fuel and petroleum, its valuable fund of facts relating to the electrification of railroads, and progress reports on its investigations in the field of fuel conservation, in the more efficient utilization of heat and in economy of the distribution of power. It contributes from its success in adapting the internal combustion engine to mass production methods and it introduces evidence of its work in developing high pressure boilers and in experimenting with the mercury-vapor process.

In return, it receives the knowledge of the Swiss and Italians on hydroelectric power generation, the experience of Central Europe on gas and diesel engines, the results of England's work with low temperature carbonization, and important contributions from many other sources.

The conference is bound to focus more attention on the need of conserving the fuel resources of the world and to acquaint the authorities of each country with the problems of their contemporaries.

Steel Wages Above Prices

IT MAY be stated roughly that wages in the steel industry at present are on a basis of approximately 2.50c, base Pittsburgh, for plates, shapes and bars. This represents the price level which had been prevailing for a number of months when the present wage scale was put into effect in August 1923. How high wages are relatively from the standpoint of the steel producers, is measured by the extent to which the steel market has sagged off from the 2.50c level. Plates, shapes and bars now are on a basis of 2.15c at Pittsburgh. Thus, wages are about 14 per cent higher than they would be if brought into line with prevailing steel prices.

At the recent meeting of the American Iron and Steel institute, Chairman E. H. Gary expressed his opposition to wage reductions on the basis that they were not justified from the standpoint of the cost of living. The cost of living index, however, at present is lower than the common labor wages in the steel industry as compared with previous years. The cost of living index stands at 161 based on 1914 and common steel labor is 235 in the same relationship. In 1921 steel wages got down to 150 while the cost of living in August 1921 was 162.

To what extent the increased burdens of living are responsible for present radical tendencies in politics, is a subject on which more than one opinion might be expressed. Hardships thrust on the masses of the world as a result of the inflated values caused by the war, have been felt more in some other countries, but they have not been lacking in the United States. A wage policy which will ease the situation as much as possible should be encouraged. Wages in the steel industry are influential in establishing the wage structure of the country as a whole. While the steel industry might be justified in making general reductions, there is no question but that a maintenance of the present schedule as long as possible is desirable.

Current Statistics of Industry

Output of Beehive Coke Still Is Falling

Washington curtailment of the production of beehive coke was resumed in the last week of June, and the total output declined to 126,000 net tons says the geological survey. Compared with the revised figure for the week before, this was a decrease of 5000 tons. A loss of 8000 tons in Pennsylvania and Ohio was partially made up by increases in the southern states. The weekly record of coke output follows:

	—Week ended— June 28, 1924a	June 21, 1924b	June 30, 1923
Pennsylvania and Ohio.	85,000	93,000	323,000
West Virginia	7,000	6,000	22,000
Alabama, Kentucky, Tennessee and Georgia..	18,000	16,000	20,000
Virginia	6,000	6,000	16,000
Colorado and New Mexico	5,000	5,000	10,000
Washington and Utah ..	5,000	5,000	8,000
United States Total....	126,000	131,000	399,000
Daily average	21,000	22,000	67,000

(a) Subject to revision. (b) Revised from last report.

Despite recent gains in soft coal production the rate of output remains well below that at the corresponding date of all recent years except 1922. Production apparently has fallen more rapidly than consumption. During the week ended June 28, coal output rose slightly to 7,327,000 tons.

Locomotive Sales Up

Washington, July 8.—June shipments of locomotives were 145, the largest monthly total since January when 151 were delivered, according to figures by the department of commerce. Unfilled orders on June 30 were 531 as compared with 643 on May 31 and 640 on April 30. Following is a comparison of the monthly averages of 1920 to 1923 and January through June 1924:

Year and month	Shipments Total	Shipments Domes.	Unfilled orders Total	Unfilled orders Domes.
1920 monthly ave.	199	110	1,323	894
1921 monthly ave.	112	69	337	206
1922 monthly ave.	106	88	889	791
1923 monthly ave.	266	249	1,592	1,513
1924				
January	151	147	376	344
February	99	92	499	466
March	132	128	534	494
April	73	63	640	586
May	111	93	643	589
June	145	134	531	462

An involuntary petition in bankruptcy was filed on June 19 against the A. H. Petersen Mfg. Co., Milwaukee, manufacturing electric drills. Liabilities of $185,000 and nominal assets of $310,000 are listed. The plant at 1614 Fratney street, built about three years ago, was damaged by fire recently.

Malleable Output Drops

Washington, July 8.—Malleable castings production in May totaled 49,814 tons, as compared with 58,634 tons in April and 72,807 tons in March according to figures of the department of commerce based on returns by 132 manufacturers. Bookings dropped from 45,955 tons in April to 29,741 tons in May. Operations were at 45.6 per cent of capacity as compared with 53.7 per cent in April. Following is a comparison of production, bookings and operating rate since May 1923:

	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
May	64,726	71	52,898	91,174
June	65,168	67.7	42,067	96,240
July	57,881	58.9	41,723	98,241
August	68,069	66.0	39,830	103,068
September .	60,930	59.9	38,636	101,750
October ...	62,238	59.9	48,621	103,837
November .	52,727	49.1	37,231	107,350
December ..	49,724	46.5	45,012	106,825
January 1924	64,379	58.6	73,964	109,798
February ..	66,637	62.0	62,652	107,551
March	72,807	66.5	60,326	109,414
April	58,634	53.7	45,955	109,131
May	49,814	45.6	29,741	109,173

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Copper Output Is Larger and Stocks Increase

Smelter production of copper from domestic sources in 1923 was 51 per cent greater than in 1922 and its value was 64 per cent greater than the output of the former year. The increase in value was due to the higher prices of the first quarter. At the end of the year prices were below the level of 1922. Production of new refined copper from domestic and foreign sources in 1923 was at a higher rate than in any previous year except the abnormal years 1916-1918, according to statistics issued by the geological survey of the department of the interior.

Domestic consumption has kept pace with production and was also at the highest rate except for the years mentioned. Because of lessened consumption in Europe and increased production in South America and Europe stocks have increased in spite of larger consumption in America and prices are below the figure producers had expected.

Statistics of the copper market are as follows:

Pounds	1922	1923
Smelter output	950,285,947	1,434,999,962
Domestic refinery output	904,670,685	1,464,164,995
Domestic and foreign refined 1,255,515,959		1,979,835,616
Total new and old copper 1,927,000,000		2,802,000,000
Average price per pound, cents	13.5	14.7
Refined copper stocks, Dec. 31	216,000,000	264,000,000
Value United States production	$128,289,000	$210,945,000

To Modernize Works

New Castle, Pa., July 8.—The New Castle plant of the Carnegie Steel Co. is to be modernized at an expenditure of $1,000,000 in the immediate future, it was announced recently by George A. Rigby, general superintendent of the plant. The appropriation for the improvement has been authorized by the United States Steel Corp., and is for the installation of a central gas-fired boiler system, which will be in addition to the coal-fired system recently installed.

Gotham Stamping & Die Corp., New York, has altered its capitalization from 100 shares $100 par preferred stock to 200 and 500 shares of common stock to 1000, no par value.

The Business Trend

July 10, 1924

BY JOHN W. HILL, FINANCIAL EDITOR

BUSINESS remains at low ebb, but sentiment has improved. Sharply curtailed production, firmer security markets and rising grain prices, have given some hope that the turn may be near.

Pronouncedly abrupt recessions in production are favorable. They are wiping out the bogie of overproduction and restoring equilibrium between supply and demand. This fact, together with more attractive prices, has brought a hint of better buying in a few lines.

The precipitate decline in industrial outputs is measured by pig iron. From the peak point in March to June the daily average rate of iron production fell 40 per cent.

Significantly, however, of all the blast furnaces which suspended operations in June, three-fourths of them became inactive before the middle of the month. A better holding of the line of active furnaces toward the close of the month reflected improvement.

Politics a Factor

Politics remain a factor in the outlook, though a constantly less disturbing one. Neither the Democratic deadlock nor the La Follete candidacy has ruffled the financial markets. For the former no radical outcome is feared.

The La Follette nomination by the so-called Progressives and the Socialists is not regarded with alarm. The impressive advance of grain prices will steal much of the radicals' thunder, by allaying discontent among farmers.

The economic tables are rapidly being turned in the farmer's favor. His buying power is rising, as that of industrial workers is declining. Factory employment has dropped about 10 per cent in a year. Department store trade has declined, while mail order sales in June, reflecting farmer buying, gained.

Wages at Peak

Wages continue at the peak, however. While reductions have been made in a scattering of industries, general lowering of the wage level is unlikely unless the reaction persists.

For the first time in five months commodity prices advanced in June. Dun's wholesale price index increased by 1 per cent. The gain was due entirely to higher grain prices. Industrial prices were lower, indicating a better balance between rural and urban values.

Business failures in June reveal the normal downward tendency. For the second quarter also there was a reduction in commercial mortality. In number there was a drop of 9 per cent from the first quarter and in liabilities a drop of 35 per cent.

The Barometer of Business

Weekly Comparison

	Last week	Week before	One mo. ago	One year ago	1913
Business Failures	...	340	410	...	...
Cash ratio Fed. Res. System %	81.5	82.8	82.2	74.4	...
Loan rate, 4-6 mos. N. Y. %	3½-3¾	3-3¾	4-4¼	4¾-5	5¼
Aver. 25 industrial shares	$111.95	$111.30	$107.10	$102.52	$58.19
Aver. 25 railroad shares	$66.44	$66.34	$63.52	$58.07	$82.91
Aver. 40 bonds	$80.53	$80.70	$78.98	$76.14	$93.00
Car loadings, week ended June 21	903,700	902,710	913,000	1,004,982	*911,503
Bank debits 246 cities (000 omitted)	$11,358,516	$9,349,487	$9,058,397	$10,056,904	.....

*1920

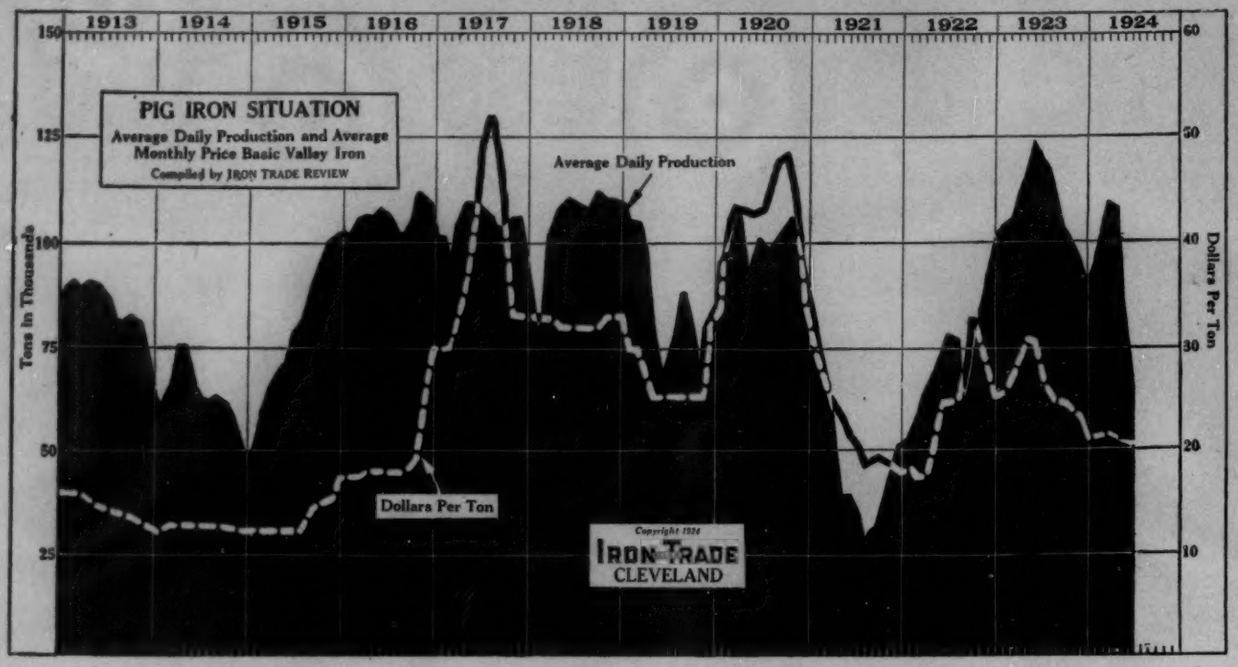
Foreign Exchange (Demand)

	Normal	Last week close	One week before	One month ago	One year ago
Sterling	$4.86	$4.32	$4.32	$4.31	$4.56
Francs	19.3c	5.02c	5.29c	5.12c	5.80c
Lira	19.3c	4.26c	4.32c	4.34c	4.21c

Monthly Comparison

	May	One Month before	One Year ago	1913 Mo. average
Dodge Building awards in 27 states (sq. ft.)	57,708,800	63,347,400	60,844,300	31,250,000
Business failures: Number	**1,607	1,816	1,358	1,336
Liabilities	**$34,099,031	$36,590,907	$28,678,276	$22,732,000
Exports	$336,000,000	$348,000,000	$316,359,000	$233,195,000
Excess of gold imports	$40,480,000	$44,027,000	$45,331,751	†$630,716
Bureau of labor price index	147	148	156	100
Bradstreet's price index	133	135.8	144.8	100
Economist's British price index	166.6	170.6	161.5	100
Nat'l Industrial Con. board living cost index	161.4	161.8	160.3	‡100
New incorporations	**$455,022,400	$519,897,000	$1,403,336,000	$49,301,000
Railroad net earnings	*$61,821,900	$80,239,885	$83,515,300	$59,301,000

†Excess of gold exports. ‡July, 1914. *April. **June.

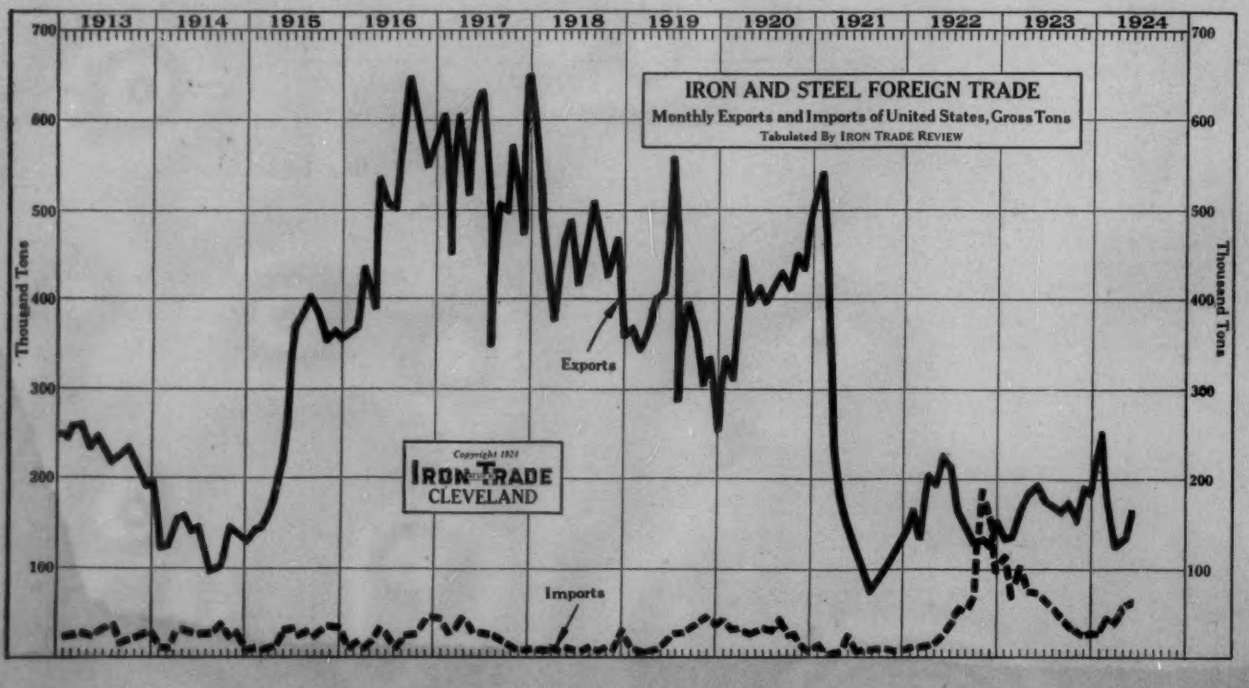


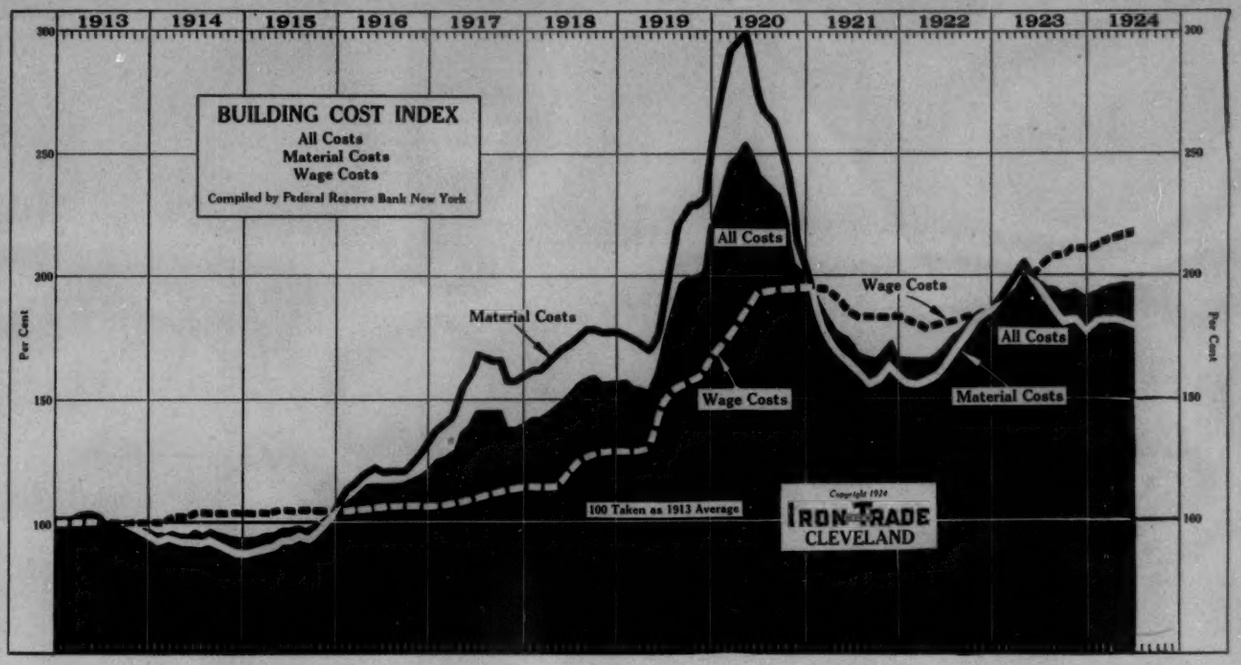
Pig Iron Situation

PIG IRON production in June of 67,379 tons was at the lowest point since the coal strike month of August, 1922. With that exception it was the lowest since March, 1922, when the industry was emerging from the 1921 depression. The decline from May was 20 per cent. From the year's peak in March the output last month was down 40 per cent, the widest three-months' recession ever recorded. During June 27 furnaces stopped making iron, the bulk of them early in the month. Prices continue lower.

Steel Foreign Trade

BOTH exports and imports of iron and steel products continued their increasing tendency in May. Exports of 168,172 tons were the highest since February. They show a recession of 18 per cent from May of 1923, but are virtually equal to the monthly average of last year. Imports of 66,805 tons climbed to the highest level since June, 1923. Pig iron imports in May jumped to 25,220 tons. One of the most impressive gains in exports was that of tin plate, which increased from 6000 tons in April to 22,000 tons in May.



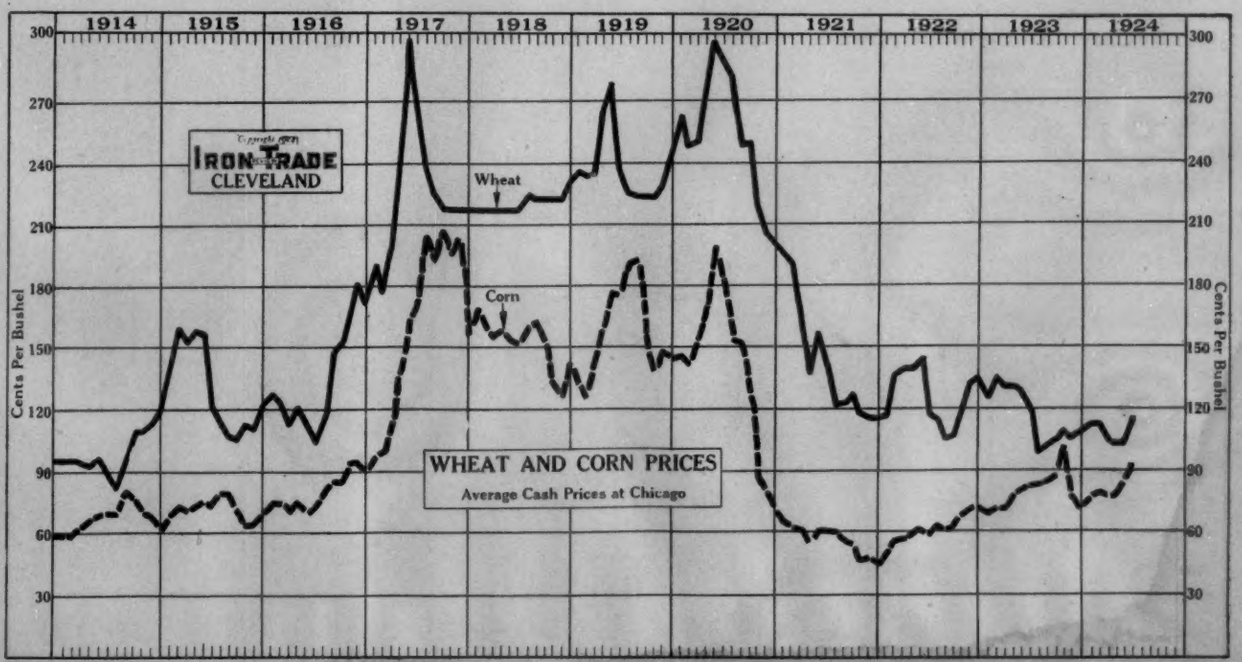


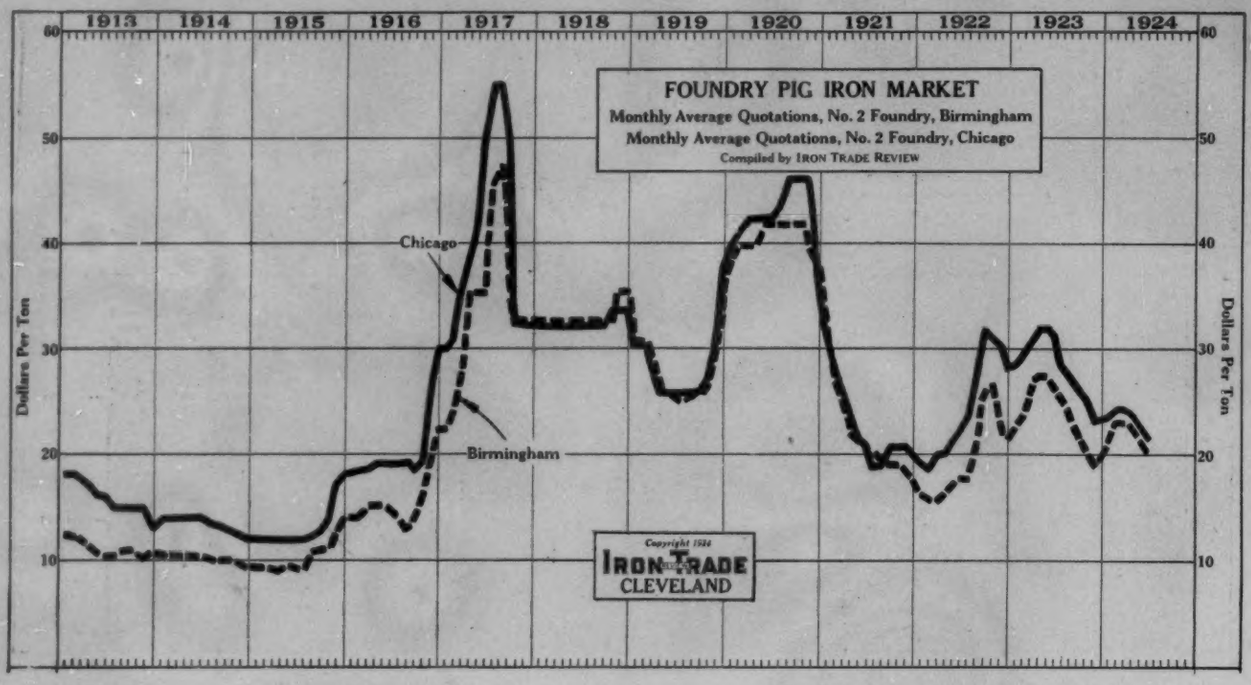
Building Costs

BUILDING costs have reached the peak and turned downward. In May the index of construction costs, computed by the federal reserve bank of New York, stood at 194 against 195 one month before. Twelve months ago the index was 201—the peak for 1923. The recession has come entirely from lower costs of materials. These prices in the index now stand at 180 against 182 in April and 204 in May, 1923. Wages have continued their upward march. In May, they were at 215 against 214 in April.

Corn and Wheat Prices

ONE of the most impressive and important economic movements of recent months has been the sweeping upward swing of grain values. From their low points of 1924 corn has gained more than 20 cents a bushel to the highest price since 1920, and wheat is up more than 16 cents to the best level in a year. Other grains have soared similarly. The advance is increasing both confidence and purchasing power in the grain belts. Livestock prices are lower but the agricultural situation generally is greatly improved.



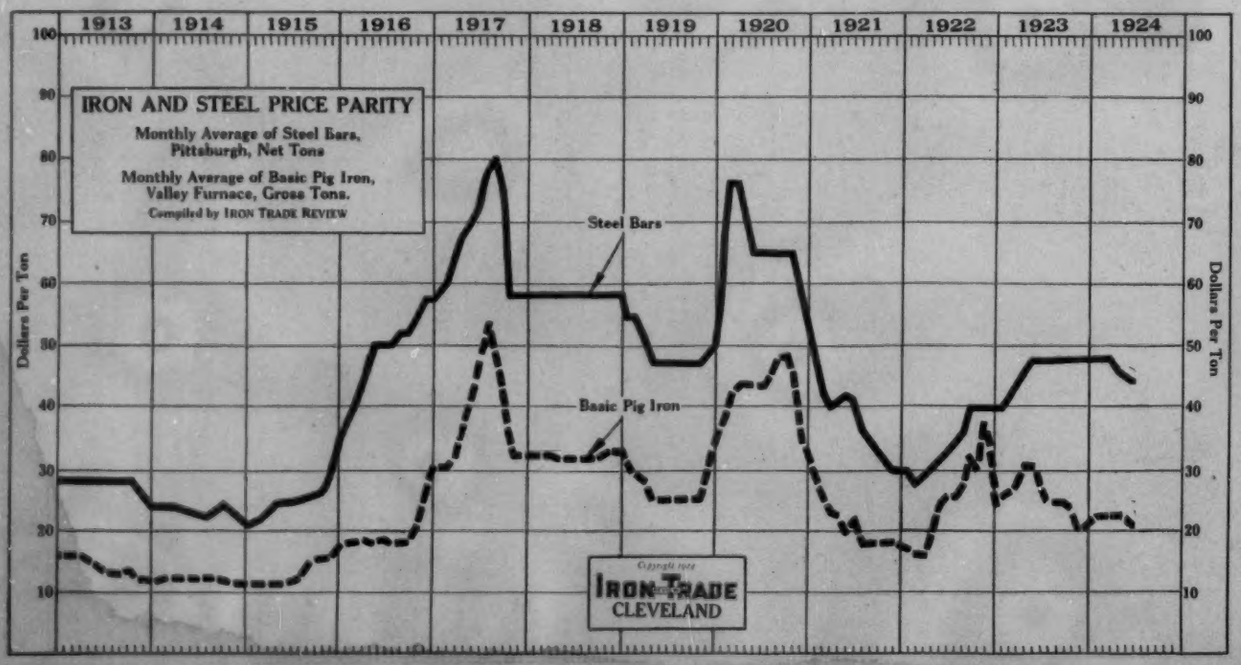

FOUNDRY PIG IRON MARKET
Monthly Average Quotations, No. 2 Foundry, Birmingham
Monthly Average Quotations, No. 2 Foundry, Chicago
Compiled by IRON TRADE REVIEW
Chicago
Birmingham
Dollars Per Ton
1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924
60 50 40 30 20 10
Copyright 1924
IRON TRADE
CLEVELAND

Foundry Pig Iron

THE narrowing spread between northern and southern foundry iron is graphically pictured in the diagram. In June the average price of Chicago No. 2 foundry iron was $21.40. Southern No. 2 Birmingham was $20. This was a spread of only $1.40. In April the gap was $2.40 and in July, 1923, it was $3. In 1913 the spread held around $7. This basic change in price relations reflects the expanding market for iron in the South, which has come with the great recent industrial development below the Mason and Dixon line.

Steel Price Parity

PIG iron prices descended a lonesome pathway unaccompanied by finished steel in 1923. That situation is not holding true for this year, finished steel joining in the recession which began this spring. Apparent overproduction of iron last year caused prices to weaken. Finished steel, however, was held steady by strong producers. As a result of the decline of steel bars the spread between finished steel and iron has been narrowed. It was as great as $28 a ton last December. The spread is $24 now.


IRON AND STEEL PRICE PARITY
Monthly Average of Steel Bars, Pittsburgh, Net Tons
Monthly Average of Basic Pig Iron, Valley Furnace, Gross Tons.
Compiled by IRON TRADE REVIEW
Steel Bars
Basic Pig Iron
Dollars Per Ton
1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924
100 90 80 70 60 50 40 30 20 10
IRON TRADE
CLEVELAND

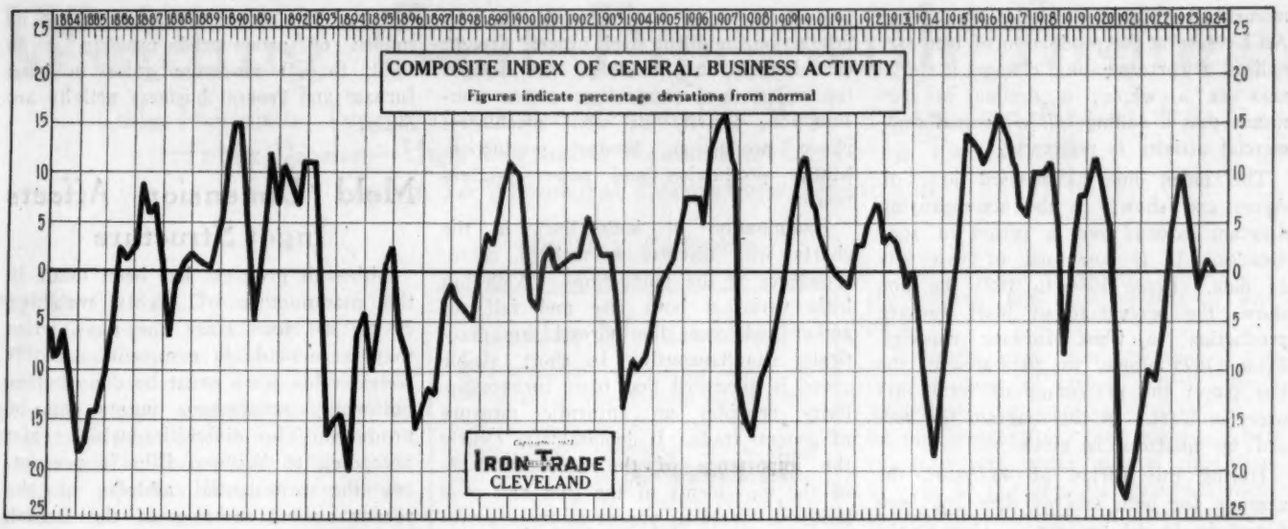


Fig. 1—Twelve separate series of industrial data comprise the composite index of general business. The fluctuations of the curve reflect a wide range of activities

Measures Business by Pig Iron

New Index of Business Is Devised by Col. L. P. Ayres Based on Record of Blast Furnace Operations—Average Number of Active Furnaces Over 40 Years Shown To Be 60 Per Cent of Total

THE theory of the business cycle as a positive force in the ebb and flow of trade has found general acceptance in recent years. Extended research clearly reveals that industry moves in certain unmistakable forward and backward swings. Unfortunately, however, these fluctuations are lacking in regularity. Even the closest observers frequently find it difficult to determine the position of business in the cycle at any given time.

This fact has given rise to the urgent need of a business indicator which would "locate" the cycle, much the same as the hands of a clock point to the hours of the day. A number of these instruments has been invented but few of them are available for practical service to the business man. For the most part they are constructed upon such an elaborate and complicated scale and involve such flights of statistical fancy as to nullify their usefulness to the uninitiated.

It has remained for Col. L. P. Ayres, vice president of the Cleveland Trust Co., and one of the country's foremost business economists to evolve a Business Index almost startling in its simplicity. This is based upon the undiluted record of blast furnace operations. As a faithful measure of general trade movements seemingly it meets a 40-year test of accuracy. The development of this index comprises one of the most important single contributions of the year in the field of business research.

In turning to the iron and steel industry for the comprehensive yet simple index, Col. Ayres has applied the lesson of 100 years of industrial history. In peace and in war iron has held unchallenged sway as the universal metal. Its domain has steadily grown from the dawn of the industrial era. At the existing stage of development iron may be traced as a basic raw material in innumerable industries.

A century ago iron production reflected the mood of general trade at the

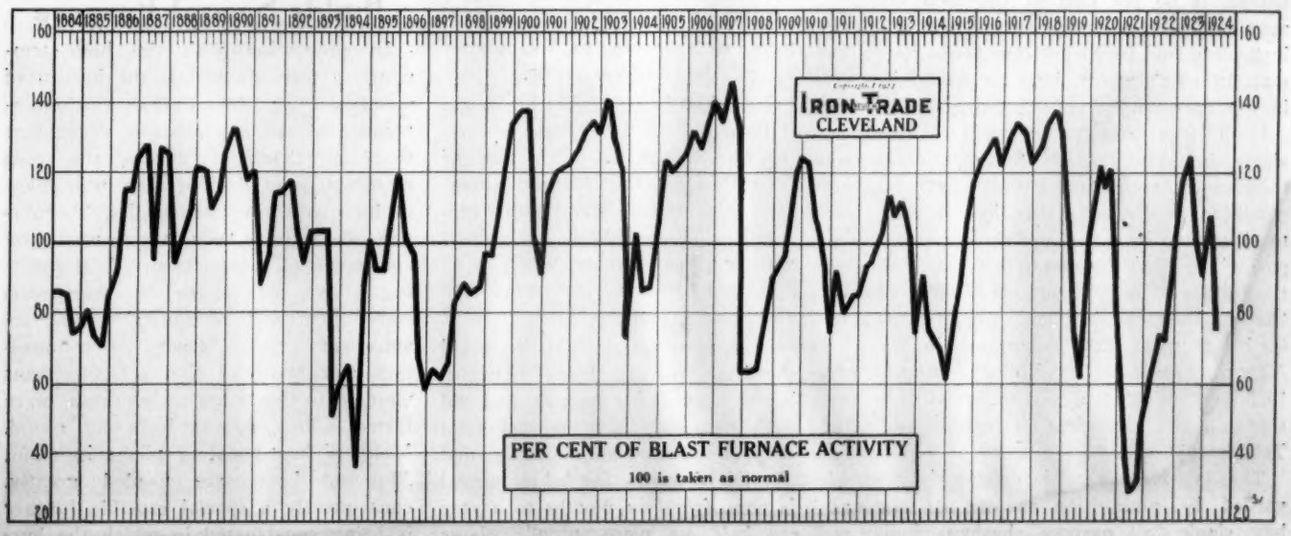


FIG. 2—A GENERAL BUSINESS INDEX BASED UPON THE SINGLE ITEM OF BLAST FURNACE ACTIVITY IS SHOWN IN THIS CURVE. ITS MOVEMENTS CORRESPOND WITH THOSE OF THE MORE ELABORATE INDEX IN FIG. 1

moment. The same rule holds true today. An increase in the production of iron signalizes a corresponding change in business as a whole; a decline in iron means that a falling off in general commercial activity is underway.

The index line as devised by Col. Ayres and shown in the accompanying diagram extends over a period of four decades. It is composed of two sets of data. From 1884 to 1895 the line shows the percentage of blast furnace production to blast furnace capacity. From 1895 down to the present the line traces the percentage of total furnaces in blast. In the diagram the record by quarters is given.

During this period of 40 years the average for both sets of data has been found to be 60 per cent. This means that long experience shows blast furnaces are running at normal when 60 per cent of this total number is active and producing iron. According to this gage when the rate of activity lifts above 60 per cent, the industry is above normal; when it falls below 60 per cent, it is below normal.

In the diagram, normal is taken as 100 per cent. The movements of the curve fluctuate about that line, which represents the average percentage of total furnaces in blast. This index enables the business man to determine by a simple mathematical process the position of general business each month insofar as it is recorded by the analogy of pig iron. Figures of pig iron production and of blast furnace activity as collected and compiled by IRON TRADE REVIEW always are available within the first few days of each month.

With these in hand it should be a simple matter to read the business thermometer. With 411 blast furnaces in the country, the fact that 329 of them were active would mean that 80 per cent of the total were producing iron. Since normal is 60 per cent of the total the actual number of active furnaces in this instance would be 33 per cent above normal. In other words, business would be in the prosperity wave of the cycle.

Is it true that the record of this single industry can be depended upon to give an accurate picture of general conditions? Probably the best answer to that question is to be found by comparing the blast furnace index line with the diagram of "Composite Index of General Business Activity." This graph is based upon data appearing in the *Harvard Business Review* of January 1923, and provided by the statistical division of the American Telephone and Telegraph Co.

The index of that institution is regarded by authorities as one of the best single "all purpose" business indicators yet made. tI is composed of 12 separate series of data including, pig iron production, unfilled steel orders, freight car demand, car loadings, net freight ton miles, coal production, cotton consumption, activity of wool machinery, paper production, lumber production, leather production and power production.

Examination of both lines in the charts will disclose a marked correspondence in the fluctuations. With but little variation both rise and fall together and cross the normal line practically simultaneously. In short, visible proof is presented that blast furnace activity provides an authentic measure of general trade. It demonstrates clearly the importance of the constant study of the movements of the iron and steel industry. Various phases of these movements are graphically presented each week in the *Business Trend* of IRON TRADE REVIEW.

The blast furnace index is believed by Col. Ayres now to be an exceptionally reliable and prompt measure of trade. Its author also considers that it possesses barometric qualities. He has found for one thing that it forecasts the movement of bonds. He says:

"The value of this line as an indicator of the condition of general business becomes especially evident if one studies it in connection with the movements of bond prices. The market value of these securities tends to rise in periods of depression and to fall in times of prosperity. One rule which would have worked with almost complete dependability during the past 30 years would have been to buy bonds whenever this line passed below normal and to have sold them again whenever it recovered and passed above normal."

Col. Ayres is perfecting the index with the purpose of making it not only a useful and practical indicator of the investment market, but also as a trustworthy forecaster of the tides of trade. It is extremely possible that the curve of blast furnace activity may supply the present need for a trade clock which will point each month to the precise position of the business cycle.

At present the index stands at 76 per cent of normal. It is interesting to compare its present position with that of late 1910 when the line declined almost to where it is now. Many authorities have predicted that 1924 in a business way will correspond more nearly with the 1910 and 1911 period than with any other recent years.

During those years it will be noted that the blast furnace index remained well below normal for months and did not cross the line above normal until late in 1912. Examination shows that when the line drops as far below normal as it is now, from six months to a year and one half, or more, usually elapse before a definite recovery above normal occurs. This seems to indicate that no sudden or pronounced upswing is in sight, though moderate gains in blast furnace and general business activity are likely.

Mold Dimension Affects Ingot Structure

Although progress has been made in the manufacture of ingots weighing 20 to 100 tons since the days when they were made in composition molds considerable work must be done before uniformily satisfactory ingots can be produced. The difficulties which exist according to William Ellis in presenting the presidential address at the recent annual meeting of the British Iron and Steel institute, London, arise mainly from the behavior of the steel after it is run into the mold. The larger the diameter of the ingot the longer is the time of cooling and consequently, the greater is the difference in the structure between the top and bottom and the outside and center of the ingot. Owing to the difference in specific gravity of the various elements in a steel ingot, principally carbon, sulphur, and phosphorous the longer fluidity continues the greater is the opportunity for these elements to rearrange themselves to their own liking. This results in segregation and various occlusions and in view of the nature of the work, for which ingots of this sort are required, as great a uniformity in structure and physical properties as possible is essential. The metallurgist who can successfully overcome the inherent difficulties of producing ingots of heavy weight and uniform structure will have done a great service to the steel industry.

Builds Special Furnace

In connection with the high temperature tests on metals the bureau of standards has found that the maintenance of the apparatus is a constant problem, therefore during the past month a great deal of time was spent in improvements and repairs. Twenty-five short-time tests were made on specimens of a well-known heat-resisting alloy. Insofar as the specimens were themselves comparable, the results were consistent with the composition, but many of the cast specimens were defective thus only those were tested which appeared to be sound. Melts of heat-resisting alloys in about 20-pound heats are needed greatly, consequently a special crucible furnace is being constructed in which the bureau hopes to prepare these alloys.

Welding Cast Pipe with Bronze

Only Moderate Temperatures Are Required In Welding Cast Iron Pipe With Tobin Bronze—High Corrosive Resistance Of These Two Metals Owing To Structural Formations Described

BY H. Y. CARSON

TO COMBAT loss of gas from distribution mains and services, gas engineers have been interested in a method or process of construction which would produce joints as efficient and tight as the pipe.

Research on the bronze welding of cast-iron pipe has brought new ideas to bear on this subject. Of course other joints will not be displaced entirely, but the art of making welded joints in cast-iron pipe would be a great help toward economy and better engineering practice.

Among the earliest pipe lines constructed, cast iron pipe has a most satisfactory history because some of the first cast-iron pipe ever laid under ground is still in service after more than 260 years. In this country at the present time there are some 125,000 miles or more of cast-iron pipe in use, carrying fluids such as water and oil, as well as gas for heating purposes, etc. The replacement due to all forms of corrosion is practically negligible. There are acid conditions and severe corrosion conditions where even cast iron will suffer after long service, but usually it is as satisfactory as other pipe materials used.

A wide difference exists in the methods for making pipe and it is just this difference which explains the variation in the lasting qualities. Wrought iron steel and cast iron pipe all are derived from pig iron, but in the case of steel or wrought iron nearly all of the carbon must be removed before the material can be put through the rolling mill and converted into pipe.

Ordinary gray iron contains 3 per cent or more of carbon, which causes fluidity of the iron and enables it to be cast successfully into molds. When the iron sets under normal conditions in a mold the crystals formed cement themselves together in an irregular orientation with respect to the surface of the casting. While it may be possible for rust to penetrate the cast iron through porous fissures, yet the irregularity of the structure acts as a barrier to continuous rust action because after the rust has penetrated into such a structure, it cannot force the crystals apart. The rust may, after first filling up the outer pores, act as protective film against further action. It has been observed that if a strong acid is used to dissolve this outside rust coating, corrosion can go on if the rust is repeatedly removed.

Describes Crystallization

In steel or wrought iron pipe, the crystals are torn apart and broken up to a certain extent and are aligned more or less parallel to the surface. Some of the crystals upon being torn or sheared apart while passing through the heavy rolls have open edges exposed at a slight angle to the surface of the finished pipe. It is at these particular areas on the surface where pit holes begin and run rapidly into

Similar Metals Used

STRIKING similarity will be noted in the brazing metal used, namely tobin bronze, and the low temperatures recorded in welding cast iron pipe in this article and one written by A. H. Jansson, published on pages 1632 and 1633 of the June 19 issue of IRON TRADE REVIEW. *In both discussions the welding temperatures recorded are approximately the same, 1450 to 1700 degrees Fahr. These low temperatures have the advantage of preventing excessive oxidation at the weld which might be detrimental to the strength of the parts welded.*

In the method developed by Mr. Carson an ordinary welding rod of tobin bronze is used, the joint being preheated by playing an oxy-acetylene flame back and forth transversely across the joint area. The bronze rod is melted and allowed to flow along the joint spreading about one inch in width entirely around the pipe.

Abstracted from a paper presented at the Cleveland meeting of the Natural Gas Association of America. The author is research engineer of the American Cast Iron Pipe Co., Birmingham.

FIG. 1—WELDING CAST IRON PIPE WITH TOBIN BRONZE BY OXY-ACETYLENE FLAME. FIG. 2—SECTION OF WELDED CAST IRON PIPE READY FOR LAYING

or through the section of the pipe.

Cast iron pipe has been welded successfully using tobin bronze. As to the tobin bronze used in the bronze welding process, the effect of corrosion is almost nil. Similarly, this bronze will coat itself with a greenish oxide and being likewise of a cast crystalline structure, its life will equal that of cast iron when exposed underground. This bronze is also of high tensile strength.

Tests and experiments conducted at the plant of the American Cast Iron Pipe Co., Birmingham, on bronze-welded, cast iron pipe showed the average strength of a well-made bronze welded joint on 6 inch cast-iron pipe to be 68,333 pounds per square inch of bronze section. Tests of the cast iron pipe showed it to have an average strength of 22,631 pounds per square inch. The conclusion from these tests was that tobin bronze has three times the tensile strength of cast iron and consequently needs to be only 1/3 as thick as the pipe. In smaller diameter pipes it was found to be an advantage to apply the bronze over the outside surfaces and make the total width of the weld three times as thick as the pipe.

In view of the tests mentioned and experience, the writer formulates the rule of making bronze welds 1/3 as thick as the pipe and three times as wide as the pipe is thick. This leads to a simple formula for computing the weight of bronze required per joint.

$$W = 0.9425\ t^2\ (D + 3t).$$

Where W equals weight of tobin bronze in pounds.

Where t equals thickness of pipe in inches.

Where D equals nominal diameter of pipe in inches.

The formula holds good for all sizes of cast-iron pipe from 2 inches to 24 inches. In larger sizes the problem of applying welded joints has not been experimented on sufficiently to determine just what new factors, if any, are involved.

Welding Temperatures Recorded

One of the important features relating to a thorough knowledge of bronze welding cast iron pipe is an understanding of the effective temperatures at which the welding takes place. In the case of welding ordinary steel pipe the temperature must be raised to something around 2600 degrees Fahr. to 2800 degrees Fahr., whereas in bronze welding cast iron pipe a temperature ranging from 1450 degrees Fahr. to 1650 degrees Fahr is about correct. This is an important element insofar as the structure of the cast iron material is concerned. If high temperatures are applied to cast iron,the internal structure is somewhat changed, owing to the graphitic carbon changes its form at temperatures above 1750 degrees Fahr. These higher temperatures have two effects, first, weakening the cast iron, and second, causing the graphitic carbon to burn or oxidize, and thereby setting up a retarding action against the bronze at the surface of the pipe. This retardation of the welding at the higher temperatures is an important element to keep in mind if satisfactory bronze welded joints are to be made.

The development of bronze welding cast iron pipe will undoubtedly prove a boom to the gas engineer, because it will enable him to design his distribution system with complete cast iron construction throughout. Fittings can be made of the same material as the pipe line, in fact fittings may be made from the odd pieces of cast iron pipe which are ordinarily left over from the pipe laying jobs, and these odd pieces can be worked up in the shop into suitable fittings at a great saving to the gas company. Bronze welding has many other applications than those mentioned in this paper, and it is quite probable that in the future a bronze weld may be prepared on the ends of pipe coming from the foundry, so that still further reductions in the cost of laying lines may be obtained by having a part of the field work transferred to the factory where it can be more efficiently and less costly done.

Americans Will Present Papers at Prague

Advices from the ministry of foreign affairs of Czechoslovakia to the American Engineering council, New York, recently announced that L. W. Wallace, secretary of the council, and Frank B. Gilbreth, well-known industrial engineer, who died June 14, have been elected to membership in the Masaryk Academy. Mr. Wallace was vice chairman of the Hoover committee on the elimination of waste in industry, whose findings, it was announced, were adopted officially by the government of Czechoslovakia for the guidance of industry in that country. Mr. Wallace will be one of a large group of engineers who will go to Prague to participate in the International Management congress to be held July 21-24.

Representatives of American education, commerce and industry, transportation, and the public service will present addresses at the congress. Secretary Hoover is chairman of the committee which is arranging for the participation of delegates from the United States and a preliminary meeting has been called for Sunday, July 20 at the Pantheon of the National museum.

In a paper on "Coal Storage," Mr. Wallace will give the conclusions of the council's committee which has just completed a nation wide study. "Industrial Research in the United States" will be discussed by Maurice Holland, director of the division of eugineering and industrial research, National Research council, New York. Fred J. Miller, public service commissioner of Pennsylvania and representative of the American Society of Mechanical Engineers on the American Engineering council, will speak on "Scientific Management." "Management in the Federal Government" will be the topic of W. F. Willoughby, director of the Institute of Government Research, Washington, and "Education for the Profession of Engineering" will be the theme of W. E. Wickenden, Society for the Promotion of Engineering Education.

Other papers and their authors are as follows: "Human Element in Scientific Management," by Henry C. Link, New York; "Industrial Relations in Scientific Management," by E. S. Cowdrick, New York; "General Budget Control of Operations," by Howard Coonley, Boston; "Production Management," by George D. Babcock, Peoria, Ill.; "Sales Management," by C. K. Woodbridge, New York; "Management in the Coal Industry," by Sanford Thompson, Boston; "Management of Transportation," by Roy V. Wright, New York; "City and State Management," by A. R. Hatton, Cleveland; "Vocational Education," by Channing Rice Dooley, New York; "Advanced and Specialized Education for Commerce and Business Administration," by George W. Coleman, Babson Park, Mass.; "Reorganization of the Department of Commerce," by H. Lawrence Groves, commercial attache in Prague.

Among other delegates to the conference are David H. Finck, Harvard university; Paul Atkins, University of Chicago; R. H. Fernald, University of Pennsylvania; Joseph W. Roe and James E. Lough, New York university; Calvin W. Rice, secretary of the American Society of Mechanical Engineers, New York; Julia H. Lesser, Harold V. Bozell, William O. Cutter, Harry Hopf, Louis Marburg, New York; Edwin C. Griffenhagen and C. A. Tupper, Chicago; Wellington Rupp, Olympia, Wash.; C. E. Skinner, Pittsburgh; and Morris L. Cooke, Philadelphia.

Giving Labor Product of Its Toil

Worker Entitled to Market Price of His Service, but Needs Clearer Definition of His Interest in What He Sells—Some Basic Elements in Employment Relations

BY ALLISON J. THOMPSON

THERE seems to have developed during the last few years an amazing amount of "loose thinking," induced to a considerable extent by popular "catch" words and phrases concerning human relations, such as: "The wealth created by labor," "the unequal distribution of wealth," "labor not a commodity of commerce," "the idle rich," "supply and demand," "a living wage," "the minimum wage," "the 8-hour day," "collective bargaining," "industrial democracy," and the like.

Probably one reason why these expressions have become popular is that they make a particularly strong appeal to sentiment. Many of them lose much of their significance upon analysis, when we try to balance them with reason. Sentiment, supposed to have its seat in the heart, possibly is as important in business and industrial relations as reason. The heart supplies much of the warmth and power "to make things go," but manifestly it is unsafe to follow sentiment too far from the path of reason. The heart should not be permitted to run away with the head, and the head should not be allowed to exercise too much dominion over the heart. The aim should be always to maintain a balance between sentiment and reason.

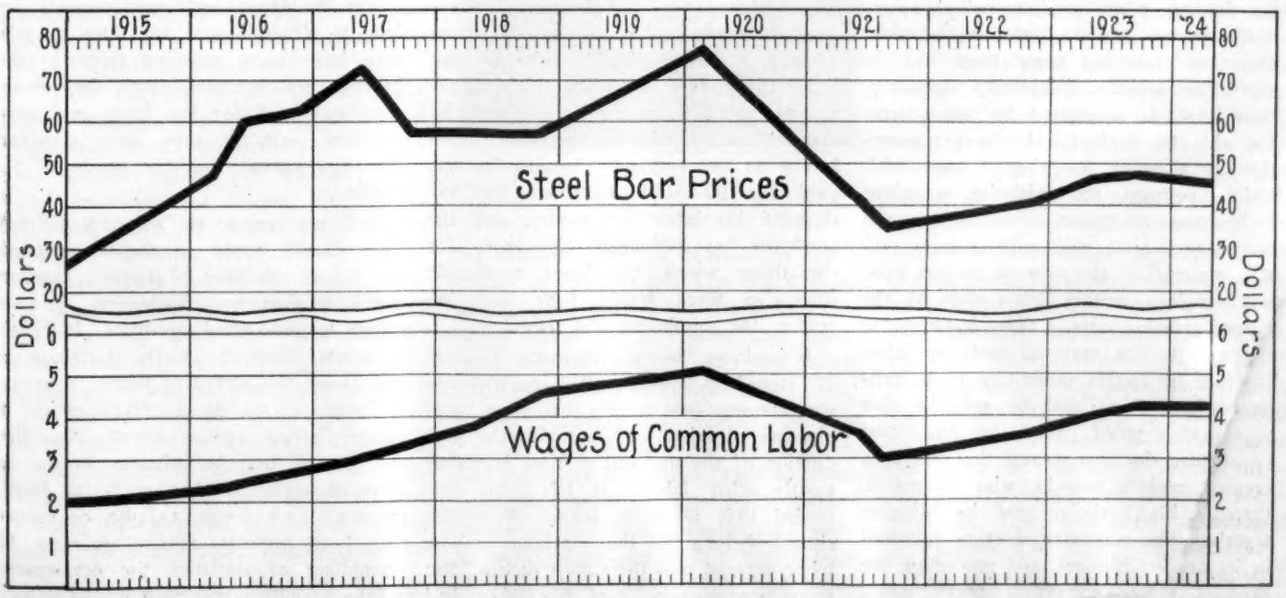
While there must always be more or less of a spirit of bargaining and coercion on the part of the "buyers" of labor, and commodities, in an endeavor to force prices down, and on the part of the "sellers" of labor, and commodities, in an endeavor to force prices up, the condition is only made worse when it is argued that human and trade relations are something different from what they are, and when it is presumed to assign to those relations, meanings and functions that are contrary to natural laws. As an instance of this loose thinking, much has been said about the wealth that has been created by labor, and the right of labor to participate in the possession and enjoyment of that wealth.

If we are to define labor in the broad sense as work done, to say nothing of the vast amount of work that is accomplished by mechanical means or by animal power, then we must consider labor only from the standpoint of work done through human effort or direction. Mechanical and animal work, and a large part of human labor, require human direction. No kind of work has any great value unless it is wisely directed, and much might be said about the part which is played by human direction in the production of wealth.

While it doubtless is true a large part of existing wealth was produced by labor, in some form or other, the labor involved in the production of that wealth would not have been performed but for the fact someone wanted to have something done. Thereupon some-

Facts Versus Theory

CERTAIN fundamentals in employment relations are explained in the accompanying article, which is the first of a series dealing with facts as distinguished from theories on this subject. The author points out that careless and thoughtless expressions and their repetition concerning the worker's interest in what he produces have created much confusion and "loose thinking," so that basic principles have been lost sight of. The articles should be of special interest to those who are conducting or participating in courses in industrial economics. The author who is president of the Thompson Electric Co., Cleveland, writes from the standpoint of a business man interested in finding out to what extent some modern theories balance with fact. The second of the series of articles will be published in an early issue.



THE RELATIONSHIP BETWEEN COMMON LABOR WAGES PER DAY IN THE IRON AND STEEL INDUSTRY AND STEEL BAR PRICES AT PITTSBURGH, SINCE 1915, AT DATE OF CHANGES IN WAGE RATES

one bought and paid for the work necessary to its accomplishment, in wages at the current market rate at the time the work was done. A market for the labor had to be created in each instance before the work could be done, except in cases where the demand was anticipated and provided for in advance by someone with a spirit of business foresight and initiative. The product of that labor thereupon began its journey, usually incorporated into other products involving other raw material and someone else's labor in like manner, through the markets of the world, varying in value from time to time according to the conditions that make or unmake values.

Value only constitutes wealth; values depend fundamentally upon the relation of supply and demand. Regardless of how much effort or labor may have been involved in its production, nothing has any value unless someone wants it, and it is located where it can be made available for use. Time and place and the cost of transportation and handling are important factors in determining values. A commodity having great value today may be worthless tomorrow, as was demonstrated in so many instances at the close of the recent war. Something having little or no value today may be in great demand tomorrow. It does not matter what something may have cost originally, when it was produced. Whatever that was it was paid for at that time on the basis of conditions then existing, and whatever it may be worth now depends upon present conditions, what the present owner may be able to do with it.

Creating New Wealth

We would be amazed if we could know how much labor has been paid for that went into products which eventually proved to have little or no value. Countless fortunes have been lost in worthless projects. Generally speaking, "new" wealth is created by people who are able to conduct a business transaction at a profit, as when a man with vision, courage and initiative conceives a business enterprise, arranges for the necessary capital, and with it buys certain material at the current market rate, and employs certain labor also at the current market rate. Then by bringing the money, the material and the labor together he causes something to be produced, something that he may be able to sell at a profit. It is this profit that constitutes the new wealth that has been created, and it was he who created it, through his initiative and by bringing together the necessary factors involved in its accomplishment, and marketing the product under conditions that yielded him a profit.

Obviously the labor element of the enterprise would have no more right to participate in this profit than the people who supplied the material, for the people who supplied the labor and the people who supplied the material disposed of everything they put into the enterprise at current market prices at the time it was supplied; and it was paid for out of wealth that had been already created. The labor was no more necessary for the accomplishment of the project than the material; both would have remained idle, so far as this enterprise was concerned, but for the initiative of the man who conceived and started the process which resulted in the demand for the material and for the labor.

What Is Labor's Share?

It will be seen that the impulse which creates a new demand and brings the necessary constructive forces into action is the element which is fundamentally responsible for the creation of new business, that makes possible the creation of new wealth. So we must realize that employed labor, as a class, has seldom created a dollar's worth of wealth that was not sold, at the time it was produced, at the market price then prevailing, and that the labor would not have been performed but for the fact that someone wanted to have something done, wanted to purchase a service.

For another illustration, a man may want to have a fence built around his dooryard. Having provided the material he employs a workman to convert the material into a fence. The building of the fence adds a certain value to the property; but it hardly could be contended that the fence or the increased value of the property should belong to the workman, or that he should have any share in either. The labor or manpower was combined with the material to produce the fence, and the resultant product together with any increased value of the property must belong to the employer, because he has paid for it. The workman has exchanged his labor for money, and the employer has exchanged his money for the thing which the labor produced; otherwise there would have been no reason for employing the labor.

A business "block" represents a form of stored-up wealth. Its construction was accomplished largely through a combination of labor and material, the production of the material in turn involving mostly other labor. It has been contended that all such forms of wealth should belong to the workmen whose labor entered into their construction. But when we consider that the labor had to be bought and paid for, or the building would not have been constructed, nothing seems more logical than that the product of that labor should belong to the person who bought the service and the material and paid for it, just as anything belongs to the one who buys and pays for it.

Various parts of the work may be sold several times in the process of construction, depending upon the number of contractors or other interests involved; but each workman is paid in wages at the current market rate for all the work that he puts into the building. Before the building was started someone conceived the possibility of a business enterprise involving such a building. When the work was completed he had the building, and the public had the money which was paid for its construction. He has exchanged his money for a business enterprise that may prove profitable, or unprofitable.

The construction of the building created new business for a large number of enterprises involving material, labor, transportation, accounting, banking and every interest that has to do with the construction, equipment, decoration and furnishing of the building. All was paid for at the current market rate, and incidentally something of value was added to the community. Every building, private or public, that is erected, and every improvement to property represents a contribution to industry and commerce, creates an additional market for the sale of labor and of various commodities involved in its construction. On every hand in every community are evidences of such contributions, many of them of stupendous proportions, that have been made to industry and commerce by business enterprise.

Applying Principle to Industry

The buildings and improvements belong to whoever paid for them or who may have since acquired them in due process of business, but the money that was paid for the labor and commodities entering into their construction has passed into the hands of the public.

It is not easy to see why any different rule should apply in the manufacture of shoes, clothing, furniture, agricultural implements, machinery, or any other manufactured product. It is the principle involved in the purchase of any kind of service. When a person is employed to do a certain work, to accomplish a certain result, regardless of what it may be, whether in the nature of unskilled labor, or laying bricks, working at a bench, a lathe, or rendering legal services, medical services, the compiling of statistics, the development of an invention, the planning of a sales policy, superintending a department of a business, or managing a business, owned

by someone else; regardless of what the service may be, if it is performed for wages or salary, or whatever the compensation may be called, it belongs to the employer who buys the service and pays for it. The selling price of the labor, belong to the workers.

So far as the wage earner is concerned, the product of his toil is represented by the wages he is able to obtain in payment for the effort or service which he sells to his employer. This principle applies to the man in business fully as much as to the wage earner. The production of a commodity, or the development of an idea, does not necessarily involve the creation of wealth. It is the business that is done with respect to the commodity or the idea that produces wealth.

When someone develops an invention he is apt to imagine that it is worth a fortune, but as a rule its only element of value is that it may constitute a nucleus for the development of a business. The wealth is created in the conduct of the business. If the inventor is able to develop the business the wealth will likely come to him, otherwise the invention may pass into the possession of another, possibly for a nominal consideration. If the new owner is able to develop the business the profit doubtless will go to him.

Determining Value of Product

The same condition holds true with respect to farm products, or other products. Their value in the hands of the producer will depend upon the business which he may be able to do with respect to them, involving his accessibility to market, the condition of the market and his skill in marketing. He may get a high price or a low price; and those price conditions may be reversed at any stage as the products pass through the various channels of trade, depending upon market conditions and the business ability of various successive owners.

It must be apparent that there is always a question as to whether what the wage earner has done represents any value, or wealth, either immediate or ultimate. But, whether it does or not, he has been paid for all of the work which he has done, and the owner of the product takes his chances with respect to its value.

It will be seen that while the contention is absolutely correct that the worker should have the product of *his* toil, yet there appears to have been a good deal of loose thinking with respect to how his relation to the product develops, and what becomes of it.

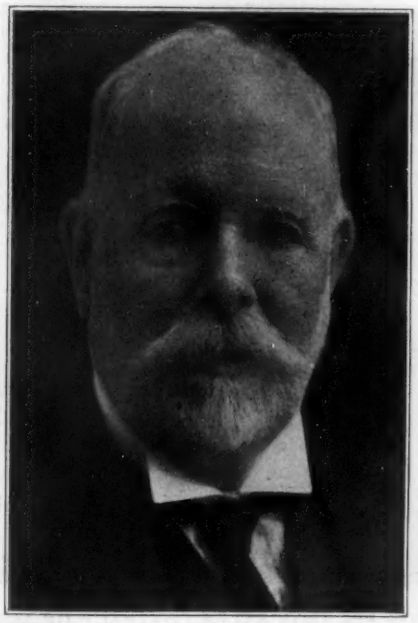
Making Steel in the Black Country

BY GEORGE HATTON

THE staple industry of the Black country, England, is and for the last 150 years or so, has been the manufacture of wrought iron, and in the last 30 or 40 years, steel. The district has owned its unique position in this respect to the fact that all the essential materials necessary to iron and steel manufacture have been obtainable and produced in the district; an excellent and abundant coal supply, ironstone, the supply of which has in late years been largely supplemented by shipments from the neighboring counties of Northamptonshire and Oxfordshire, an abundant supply of limestone, and last, but not least, the celebrated fireclay of the Stourbridge district, essential for the construction of all types of furnaces.

While the use of wrought iron has been largely displaced by mild and soft steel, South Staffordshire still holds the premier place for wrought iron, and its celebrated brands are still in demand, both at home and in the colonial markets.

It is largely due to the high quality of Staffordshire iron that the Black country still maintains what may be considered almost a monopoly of the chain cable and anchor trade, and the manufacture of all classes of crane chain and other chain. This industry, which comprises cables of the very largest dimensions ever produced, including the cables for the largest battleships and ocean-going liners, down to the smallest chain in demand, is firmly rooted in the district. The work is all produced by hand labor the skill of the chain maker being inborn and indigenous to the district, and not easily transferable to other districts.



GEORGE HATTON

The discovery by Sidney Gilchrist Thomas and Percy Carlyle Gilchrist that mild and soft steel could be made from phosphoric pig iron by a method known as the basic process, led some 35 to 40 years ago to the introduction of such steel manufacture into South Staffordshire. So long as soft or mild steel could only be made from hematite pig iron free from phosphorus, any steel made in South Staffordshire could only be made from such pig iron imported at great expense from other districts, but the basic process, the invention of Thomas and Gilchrist, whereby phosphorus could be eliminated, enabled pig iron made in Staffordshire to be used with advantage. Prior to this invention, steel was made to a small extent in Staffordshire from Hematite iron by the acid bessemer process. It is a matter of historical interest that some of the earliest developments of the epoch-making invention of the late Sir Henry Bessemer, known as the bessemer process, took place in South Staffordshire at the works of the Patent Shaft & Axletree Co., at Wednesbury, though its great development took place in other districts more favorably situated for supplies of the necessary hematite pig iron, and it fell into disuse in the Black country until the invention of the basic process led to its re-establishment some 36 years ago, as the basic bessemer process, at the works of Sir Alfred Hickman at Bilston. But the later developments have been by the basic siemens open-hearth process, there being three works in the district making steel by this latest method in considerable quantities, at the Earl of Dudley's Round Oak Works, the works of Messrs. Alfred Hickman, Ltd., and the Patent Shaft & Axletree Co., Ltd., Wednesbury.

The products of these works have been a great boom to the district, and largely instrumental in retaining the

The author is managing director of the Earl of Dudley's Round Oak Works, Ltd., Brierly Hill, England, and president of the Dudley and District chamber of commerce.

heavy constructional engineering trade in the district, there being a considerable number of large engineering firms engaged on the production of the heaviest type of girder bridges and other constructional steelwork, also railway rolling stock, who draw their supplies from the local steel works.

Reverting to the celebrated fireclay of the district, known generally as Stourbridge clay, which is distributed over a considerable area in the neighborhood of Stourbridge, The Lye Cradley, Brettell Lane, Kingswinford, Himley, etc., this is the source of a vast industry in fire bricks, gas retorts, blast furnace linings, glasshouse melting pots, etc., also glazed bricks, enamelled baths and other enamelled fire-brick goods. The manufacture of fire bricks is one of the oldest industries of the district. It has been a great boom to the iron trade, and has contributed to its development. Its products are known all over the world, and there are very few gas companies in England that do not find it necessary to use its goods.

It would be apparent to anyone that the success of the heavy trades has been due to the wealth of the mineral resources in the area. While the famous 10-yard seam of coal has been largely exploited, other valuable seams remain, only awaiting the necessary capital to develop them. Throughout the district there are enormous reserves of coal and other minerals at the very doors of the industries. It is questionable if any district in the country is so favorably placed in this respect.

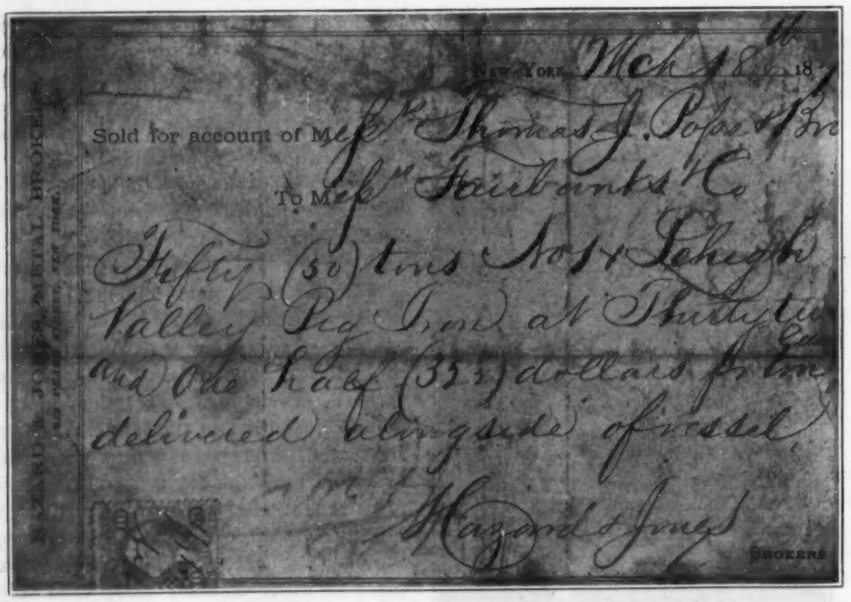
Decision has been reached to hold the annual convention of the Association Technique de Fonderie de France in Paris on Nov. 21 to 23, 1924.

Plans New Building

A new engineering building to be known as the Ramsey Engineering building is to be built this year at the Alabama Polytechnic institute, Auburn Ala., at a cost of approximately $250,000. This building which will include drafting and class rooms, laboratories, etc, with a capacity for 700 students, was made possible by a donation of $100,000 from Erskine Ramsey, prominent capitalist of Birmingham, Ala.

Approval of standards for American national screw threads for fire hose couplings by the American Engineering Standards committee, 29 West Thirty-ninth street, New York, is considered an important step in the prevention of large conflagrations. The standard threads and fittings are interchangeable.

Pig Iron "Sales Slip" Custom in 1870


Sold for account of Messrs Thomas J. Pope & Bro
To Messrs Fairbanks & Co
Fifty (50) tons No 1 Lehigh
Valley Pig Iron at Thirty two
and One half (32½) dollars per ton
delivered alongside of vessel
Hazard & Jones
BROKERS

SIMPLICITY WAS THE KEYNOTE OF THIS PIG IRON SALES CONTRACT OF 1870 THE INTERNAL REVENUE STAMP WAS FOR 10 CENTS, ON 50 TONS OF IRON AT $32.50 A TON

FIFTY-SIX years ago practically all pig iron consumed in the United States was sold through brokers. The broker's sales slip was equivalent to a contract. The typewriter had not been developed, and the printed forms were filled out with pen and ink. Only one signature, that of the broker, appeared on the sales slip.

The custom by which the broker sends one copy of the contract to each of the principals, with a request that he sign or "accept" the same, and return it thereafter to the broker, was not in use in those days. The latter practice did not become general in this country until after 1896. A veteran of the pig iron business of the seventies says:

"In those days our verbal orders were considered just as obligatory as a contract signed by all parties to the deal. The acceptance form of transaction in the pig iron and metal business dates back to the entry of new factors, not accustomed to relying entirely on the spoken word."

The courts still hold that in the absence of the broker's request to the principals for their written acceptances, the broker's contract is binding upon them, since he acts in the transactions as the agent of both principals.

The accompanying illustration shows a typical pig iron contract of 1870. The brokerage firm of Hazard & Jones on March 18, 1870, sold to Fairbanks & Co. for account of Thomas J. Pope & Bro., 50 tons of No. 1X Lehigh valley pig iron at $32.50 per ton, delivered alongside of vessel. In those days the term, "delivered alongside of vessel" meant "delivered alongside of vessel at Perth Amboy, N. J." Pig iron from the furnaces in the Lehigh valley and eastern Pennsylvania districts was then shipped over the Lehigh Valley and Central of New Jersey railroads to Perth Amboy, N. J., where it was transferred from the cars to the docks and yards of these companies. Thereafter it was loaded in vessels and shipped by water to New England ports, New York City, Brooklyn or Hudson river ports. Albany then was a great stove manufacturing center and the Lehigh iron was shipped to that city by barge up the Hudson river. The New England foundries were located largely along the New England coast, and the iron was shipped to those points usually in schooners. Iron for interior plants was taken by water to the nearest port and thence transported by rail to destination.

In those days the schooner rate on pig iron in cargoes from Perth Amboy to Boston fluctuated between 70 cents and $1.25 per ton. The rail rate on iron from the Lehigh valley furnaces was about 80 cents, making a total rate of about $1.50 to $2.05. The present all-rail rate on pig iron from the Lehigh valley to Boston is $3.65.

Temper Secured by Cold Rolling

Strip Steel Manufacture on a Quality Basis Is Contingent Upon the Proper Selection of Raw Material—Careful Methods Are Employed in the Process of Reduction—Various Grades Are Discussed

BY MALCOLM FARMER

DURING 1916 cold rolled strip mills in the United States totaled 20. These had an annual capacity of 700,000 tons. At present there are about 42 mills with a capacity of approximately 1,400,000 tons a year. Flat steel first was cold rolled about 1871. The objective desired was steel that would be hard, and therefore easy blanking; also a cheap method of getting a bright finish for subsequent plating. At that time, cold rolled steel was used almost entirely for the manufacture of hardware such as planished door butts and hinges. Since then, considerable development has taken place and cold rolled steel is produced in various degrees of hardness and several finishes, which are adapted to an almost unlimited number of manufactured articles.

Most of the strip steel cold rolled is of the soft open-hearth quality, with a carbon content running from 0.08 to 0.12 per cent. Higher carbon steels also are cold rolled in considerable quantities, as well as alloy steels, such as chrome-vanadium, low-carbon chrome, manganese, silicon, etc. In making low-carbon steels in the melting furnaces, particular care must be taken to see that the heat is not over-oxidized, and that undue segregation of carbon does not take place in the ingot molds. Such steel will be absolutely unfit for cold rolling and subsequent cold working in the dies.

Segregation Occurs in Ingot Center

Carbon segregation frequently occurs around the center of the ingot, because this portion is the last to cool. Carbon, phosphorus and sulphur are impurities, having a lower solidifying point than iron, and are not as soluble in solid steel as in liquid steel. There is, therefore, a tendency for these impurities to separate as the steel solidifies in the ingot mold. The ingot cools from the outside in, and as each layer freezes, some of its impurities are given off, to be redissolved by the liquid steel nearer the center. It follows then that the last portion of the ingot to solidify is richest in impurities. This portion last to cool, is in the center just below the pipe or cavity left by the shrinkage of the metal from liquid to solid; when rolled down to a billet, it shows the same segregation and is carried along to the hot rolled strip and cold rolled steel. Segregations will show up sometimes in a strip 4 or 5 inches wide, wherein a carbon content of about 0.07 or 0.08 per cent will appear on the edges, and as high as 0.18 or 0.20 per cent in the middle. A 0.20 per cent carbon steel will not stand the same bends and cold working as a 0.08 carbon steel. Therefore, a strip of this segregated nature will probably fail in cold working.

Pouring Temperature Is Important

The casting temperature of the steel is also of great importance. Low-carbon steels if poured into the molds too hot, will tend to show injurious segregation of carbon. Also, the more fluid the metal, other things being equal, the nearer will be the blowholes to the surface of the solid ingot. These blowholes when near the surface often are exposed during the reheating and rolling operations, and form seams or cracks in the surface of the strip. Blowholes so exposed to oxidation never will heal or weld. Steel cast at too low a temperature will solidify so quickly that opportunity is not afforded for the dissolved gases to escape, and an unusually large number of blowholes will result. A reasonable number of deep seated blowholes are not injurious, inasmuch as the normal gases included are reducing in effect. The surfaces of these holes being nonoxidized, will readily weld during the pressure of hot rolling.

A simple way to test the bath for tapping temperature, is by immersing a stirring rod or steel bar in the bath. If this bar is melted off short or square, where it enters the molten steel, the heat is "hot;" if it melts with a point the bath is "cold."

The cast-steel ingots when stripped from the molds are reheated to about 1800 degrees Fahr. and rolled down in a blooming or billet mill to billets or slabs of the desired cross section. These are known as semifinished materials. Billets in general are considered as having a cross section of from 4 to 36 square inches, the width never being equal to twice the thickness. Slabs are rectangular in cross section where the width is at least equal to twice the thickness.

These billets or slabs are delivered from the mill in pieces from 40 to 70 feet in length, and are sheared into lengths which will give the desired weight of strip in one piece. During the shearing, care must be taken to crop back, or cut off enough from the ends to remove all of the pipe or hollow portion of the ingot formed when the molten metal solidifies in the mold. As this piped portion of the ingot is not sound steel its use will cause trouble in the hot mill, resulting in the splitting of the billet.

The steel again is reheated in billet form and hot rolled into strips on a high-speed mill. These mills operate at 1000 to 2500 feet per minute, according to the type of mill and sizes rolled. The largest number of passes through the rolls are on the flat side of the billet, that is, the metal is reduced in thickness, but there also must be edging passes to smooth up the edges and hold the strip to the specified width. Edging cracks off the scale which forms between passes. On rolling steel hot, there is considerable spreading or side flow of the metal, and the man who is responsible for setting the rolls, both for width and thickness of the strip, has an exacting job. He must be careful to allow for spread. His guides must be so set as to deliver the bar from the rolls straight, but still not so tight as to cause scratches. The steel should not be allowed to pull or stretch between the mills, as this will give uneven width. The reductions should be uniform and the rolls must set tight endways, otherwise snaky or crooked strips will be produced. The rolls should be changed often enough to keep a smooth surface on the strip, because if allowed to get too rough in the early passes, slivers on the steel will result. Rolled-in scale is often due to rough rolls.

Strip Coils Vary in Weight

The strip on leaving the mill is wound up on a reel like a ribbon, and becomes a coil or hoop, and is the raw material used for cold rolling. These coils will vary in weight from 50 to 1000 pounds each, the average weight of coil being 150 to 200 pounds. Coils as heavy as 1000 pounds are rolled only on one or

From a paper presented before the Hartford chapter of the American Society for Steel Treating. The author is vice president, the Stanley Works, New Britain, Conn.

two strip steel mills in this country.

The first step in cold rolling is the opening of the coil, and recoiling it with the bend in the opposite direction. This loosens and cracks off much of the blue scale or oxide of iron Fe_2O_n, which has formed on the strip on cooling down from the hot mills. This recoiling is quickly and efficiently done on specially designed machines. The coil then goes to the pickling department. The pickling is effected by immersing the coil in a bath of sulphuric acid and water (about 10 per cent sulphuric acid), heated to about 190 degrees Fahr. This pickling removes all of the scale in about 20 minutes. The sulphuric acid attacks the steel and forms a sulphate of iron which is soluble in water and is washed off. The bath should be agitated to facilitate the pickling. The steel then is washed in cold water, and dipped in a hot soapy water bath. This leaves the steel free of scale, clean and of a grayish color.

Roll Speeds Differ

The strips then are transferred to the breaking-down mills, usually set up in tandem, that is, two, three or four stands of rolls placed one after the other a few feet apart. The coil now cold, passes through these mills, which are set to run at an increasing rate of speed from the entering mill to the delivering mill. For example, in a tandem mill of four stands of rolls, the entering mill might roll at the rate of 40 feet per minute, the delivering, or fourth mill would roll at a speed of 150 feet per minute. On leaving the mill it is wound up in a coil again. The rolls in these mills are ground smooth and bright, and the steel comes from them bright and clean. The reduction of from 30 to 50 per cent has hardened the metal so that it is stiff and springy. During this rolling all unevenness in the gage of the hot rolled strip is taken out, and the width has been increased only slightly, possibly 1/32 of an inch. A considerable amount of heat is generated in the steel during the cold rolling, so that it is often too hot to handle without the use of heavy gloves. Before further reduction the steel must be annealed to relieve the working strains set up within it, as well as to soften it.

The annealing is effected by packing the coils or strips on a heavy cast steel base or truck, and covering the pack with an air tight steel hood which is sealed all around the base with an ample sand seal. The truck then is pushed into a furnace and heated for about 12 hours, the furnace temperature being about 1450 to 1500 degrees Fahr. The truck is allowed to cool outside of the furnace. A reducing gas, free from oxygen and moisture, is introduced into the hood, in order to keep the steel from oxidizing or discoloring during this operation. Time and temperature are the two important factors. Heat penetration in the steel goes on at the rate of approximately 1 inch per hour.

During this operation, care must be taken not to decarburize the steel by excessive heat in hot spots in the furnace. Also if the gas used inside of the hood contains hydrocarbons, it will carburize low carbon steel at 1500 degrees Fahr. To illustrate these points, it has been shown that steel containing 0.25 per cent carbon before annealing, has contained only 0.12 per cent carbon after being annealed; also, a steel containing 0.10 per cent carbon before annealing has shown 0.50 to 0.60 per cent carbon afterward. Ordinary illuminating gas usually contains hydrocarbons such as ethane or methane, which make it an undesirable reducing medium.

Steel annealed in cast iron borings also will pick up carbon at fairly high temperatures. The steel is allowed to cool for 36 hours under gas before the hood is removed, and is then in what is known as the dead soft or annealed condition, and is ready for further reduction in thickness by temper rolling.

Single Stands Are Employed

In cold rolling for temper, single stands of rolls are used. The rolls are highly polished and impart to the steel the high polished surface which is common to cold rolled steel. The rolls used are made of forged and hardened alloy steel, having a scleroscope hardness of 100. The manufacture and hardening of these rolls is an art, and if not properly done the roll is useless. The writer has seen a new roll fly apart on the second or third strip rolled through it, due to the strains set up in the roll during the hardening. In this finishing rolling, it often is necessary to grind one of the rolls, (usually the top) either slightly concave or convex, in order to bring the strip steel out flat. This concavity of "shape" as it is called may be only 0.0005 inch deep or as deep as 0.003 or 0.004 inch, and may be only wide enough to extend over part of the width of the strip. Without these "hollow shapes" or special grindings the strip may come from the mill buckled or high in the center, showing that it has been reduced in thickness more at that point, and consequently elongated more in the middle than along the edges.

Sometimes a "high shape" or convex grinding is needed. In such cases the steel would come from the mill, wavy at the edges and flat along the center. The convex shape is so ground on the roll as to reduce the metal more in the center than at the edges. This elongates the center enough to match the length of the edges and the steel then will lie flat when rolled out on the floor. It requires a large amount of experience and good judgment to determine just how much, hollow or high, to grind a shape to bring a certain lot of steel flat. It is the practice in some mills to burn a gas jet under the bottom roll to expand it at desired points and so accomplish the shape. This is not good practice, however, as it is not as certain or accurate as grinding, and is bad for the roll. Makers of good steel rolls will not guarantee or replace defective rolls that have been so treated. The various tempers of the finished cold rolled strip steel are obtained by varying the amount of cold rolling after annealing. The tempered strip then is taken to the slitting and cutting department to be cut to the length required. In the case of orders calling for accurate width the strip must be slit and held to an accuracy of ± 0.01 inch of the width ordered, except where the thickness is 0.095 inch or heavier, when a greater tolerance is allowed.

Cold rolled strip steel must be clean, bright, flat and straight, when finished. The gage or thickness must not vary more than 0.002 inch under and 0.001 inch over the gage ordered for ordinary widths and the lighter gages. These limits are standard but closer rolling may be done, for which an extra charge is made. The standard limit for straightness is ½-inch bow or camber in 8 feet of length. Perfectly straight steel may be produced but an extra charge is made for limits closer than the standard.

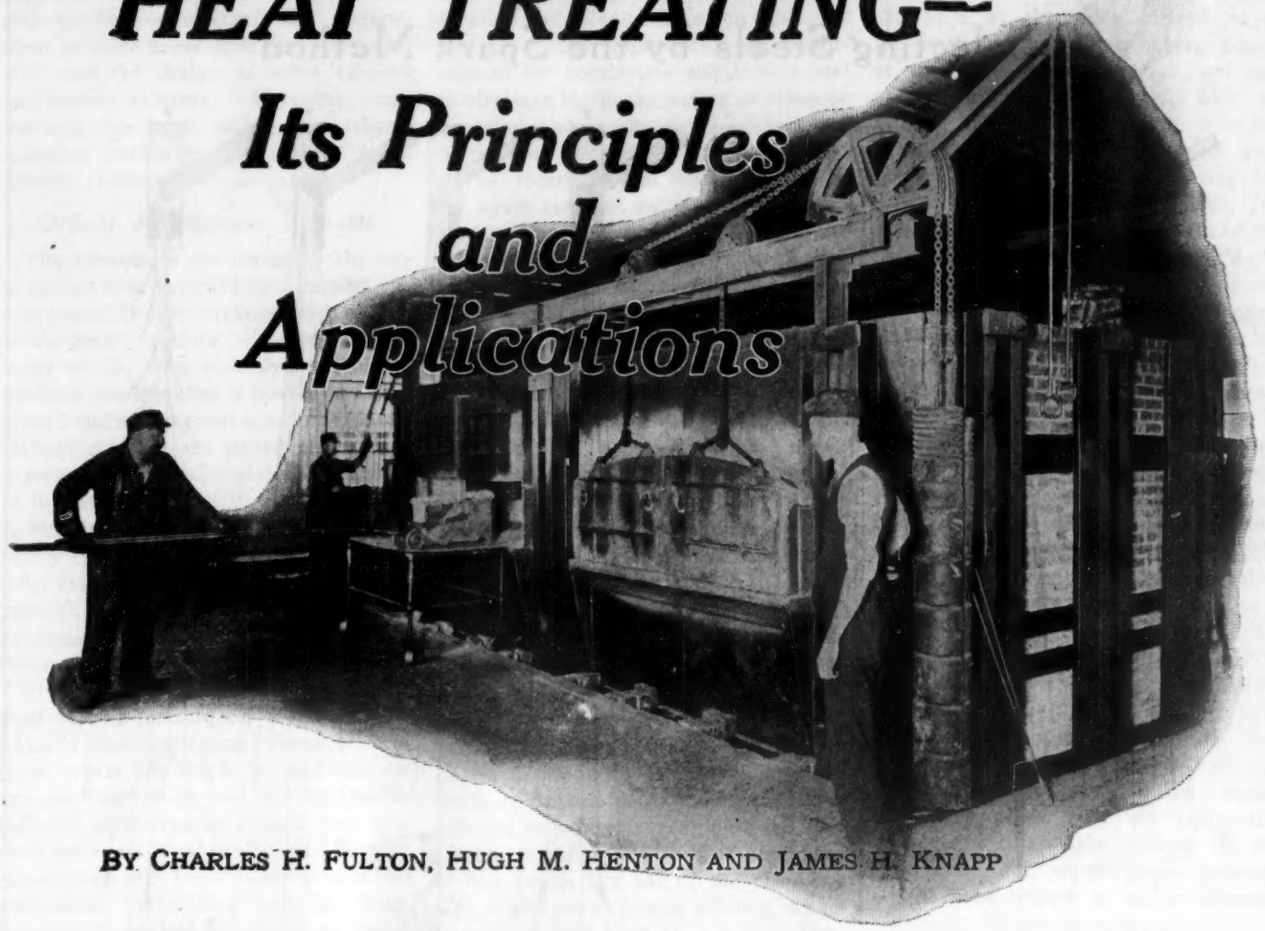
Cold rolled steel also is produced with a smooth-rolled round or square edge, which is obtained by rolling the edges and flat surface in a universal type mill. This steel is for special uses. Strip steel may be cold rolled as thin as 0.002 inch. However, such rolling is not common. Strips 0.006-inch thick are not unusual. Finished widths may be had from ¼ inch to 30 inches.

Numerous Tempers Are Available

If a free, clean blanking steel is wanted, a hard or No. 1 temper is used. This temper will cut clean, and will be easy on the punches and dies, as a reasonable clearance may be allowed. Temper No. 1 also will have a higher tensile strength than the softer grades. It will not, however stand more than easy rounding bends

(*Concluded on Page* 108)

HEAT TREATING—
Its Principles and Applications



BY CHARLES H. FULTON, HUGH M. HENTON AND JAMES H. KNAPP

Chapter VII—Carburizing and Case Hardening—(Continued)

BECAUSE of the difference in their chemical constituents, alloy steels require carburizing and case hardening treatment differing considerably from that given plain carbon steels. The elements which enter into solid solution with the iron of the steel retard the rate and depth of carburization, while those which form separate carbides hasten the action. All of the elements exert an influence on the position of the critical points, and since the effect of each is different, it is necessary to work out a distinct procedure for heat treating each type of alloy steel.

The methods of treating the various steel alloys now in common use will be described in detail in Chapter VIII. The subject is mentioned here in order to emphasize the fact that carburizing is not a hit or miss proposition that can be applied to all kinds of steel in the same way. Carburizing must be carried out accurately and with due consideration of the composition of the material used and the purpose for which it is intended after treatment is completed.

For this reason it is necessary to distinguish steels of different analysis. This can be done quickly by chemical and microscopic examination, but frequently it is convenient to have a means of sorting out miscellaneous or doubtful piles of steel which accumulate in the shop. Even when a complete system of distinguishing markings is employed to identify the different steels, it often is necessary to check up on short pieces, partially finished stock and other material from which the markings have disappeared.

Fig. 67 illustrates a method of identifying steels developed by John F. Keller. The sparks issuing from a piece of steel when it is held against a grinding wheel have been found to give an accurate indication of the carbon and other elements in the steel. The use of this simple method serves to prevent mistakes in carbonizing caused by attempting to harden alloy steels by a straight carbon process or vica versa.

Carburizing furnaces have undergone a series of rapid developments during the past few years. This is especially true in the case of units designed for carburizing material on a quantity basis, because in adapting the process to modern production methods, as exemplified in the automotive industry, the time required for carburizing had to be reduced without interfering with the quality of the work. This was accomplished

Carburizing Procedure Is Outlined

EQUIPMENT and accessories used in case hardening are discussed in this the fourth installment of Chapter VII. Chapter I of the series appeared Oct. 4; Chapter II was published in the issues of Oct. 18, Nov. 1 and Nov. 15; Chapter III in the issues of Nov. 29, Dec. 13 and Dec. 27; and Chapter IV in the issue of Jan. 10. Chapter V appeared in the Jan. 24, Feb. 7, Feb. 21, March 6 and March 20 issues. Chapter VI appeared April 3, April 17, May 1 and May 15. Chapter VII appeared May 29, June 12, and June 26.

Charles H. Fulton is director of school of mines and metallurgy, University of Missouri; Hugh M. Henton is consulting metallurgical engineer and assistant professor of metallurgy and mining, State College of Washington, and James H. Knapp is industrial engineer, Los Angeles.

Selecting Steels by the Spark Method

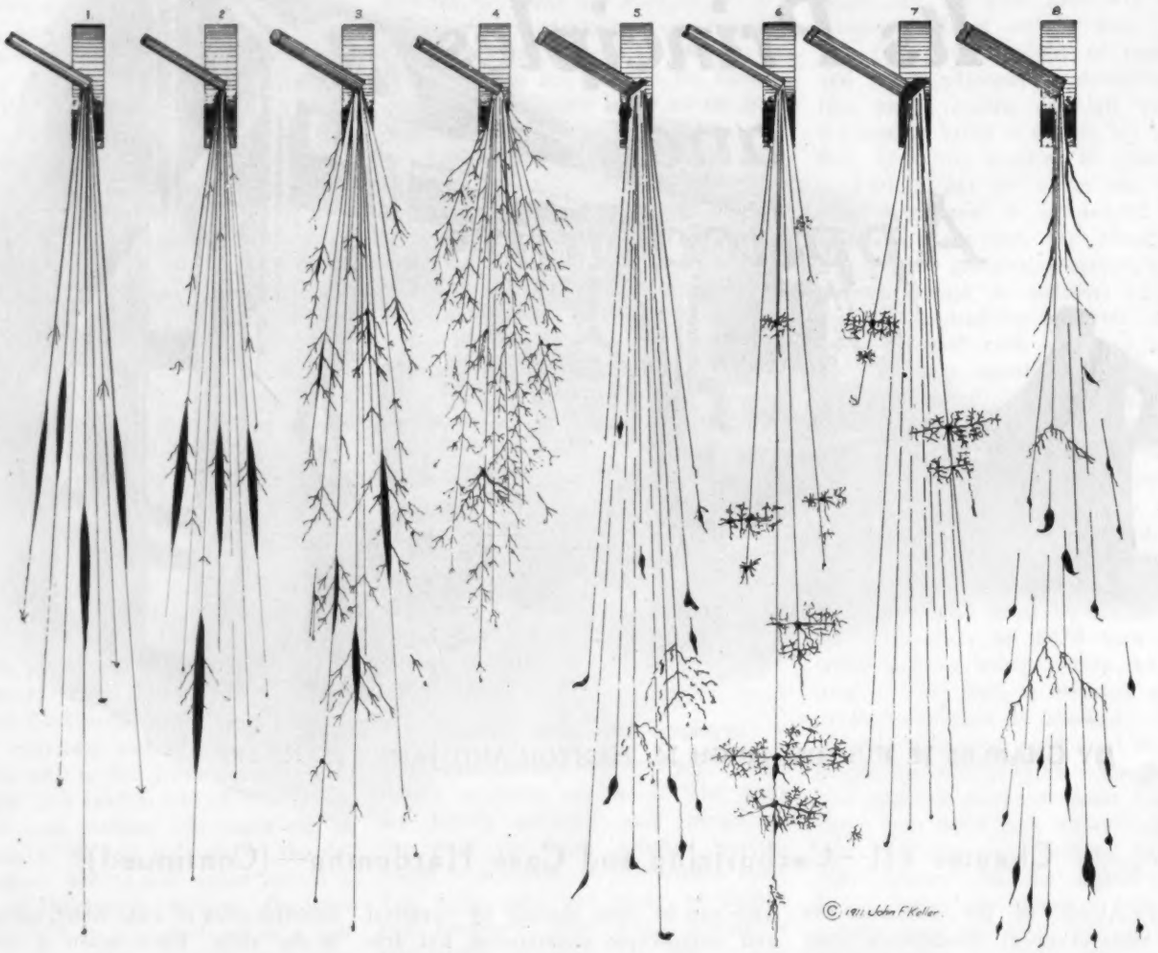


FIG. 67—SPARK METHOD OF SELECTING STEELS—(FROM JOHN F. KELLER, LAFAYETTE, IND.)

Fig. 1—A piece of wrought iron free from carbon. If held against the emery wheel the end of the bar will be heated by friction; as the small particles are thrown from the wheel they will follow a straight line which becomes broader and more luminus some distance from the source of heat, and then disappear as they started. This is probably due to the action of oxygen of the air on the heated particles requiring some time to act. Note—Touch material lightly on wheel; observe individual spark.

Fig. 2—Mild steel which contains a small percentage of carbon. The effect is at once noticeable by a division or forking of the luminous streak; this is owing to the presence of carbon which is acted upon by the maximum heat of the iron spark, which then burns explosively, causing a break in the original heavy lines.

Fig. 3—The lower grades of tool steel which contain from 0.50 to 1.00 per cent carbon. The iron lines become less and less conspicuous; the forking of the luminous streak occurring very much more frequent, often subdividing; the lower the carbon the less sparks and further from the source of heat.

Fig. 4—In the higher grades of carbon steels, the iron lines are practically eliminated, with an increase of the star-like explosions which often divide and subdivide, causing a beautiful display of figures. This is probably due to the iron and carbon becoming so united that they are most easily attacked by the oxygen. Hence the great danger of burning steel in the fire. It would be well to state that the higher the percentage of carbon, the more profuse the explosions and the shorter the distance from their source of heat.

Fig. 5—Chromium and tungsten high speed steels are very easily determined by the spark test. The particles seem to follow a broken line with a very slight explosion; just before they disappear the color is of chrome yellow, and show no trace of a carbon spark.

Fig. 6—Manganese in tool steel above a certain per cent is an injurious element. The characteristic of the manganese spark is that it widely differs from the carbon spark in that it seems to shoot or explode at right angles from its line of force. Each dart is subdivided into a number of white globules. With a little practice, the trained eye will soon detect the slightest trace of manganese in the iron or steels.

Fig. 7—Mushett steel, the grade of air hardening or high speed steel. It is very easy to distinguish from other steels as the particles follow a broken line and are a very, very dark red, with an occasional manganese spark.

Fig. 8—Represents the spark as thrown from a special steel manufactured and to be used especially for magnets. It clearly demonstrates the advantage of this method of selecting steels by comparison; in other words, mark your favorite brands or grades and compare them with others. By practicing this method, there will be fewer taps and reamers made out of machinery steel, with a corresponding decrease in the number of forgings made out of metals that are too high in carbon.

chiefly through the adoption of mechanical handling equipment, the employment of more accurate temperature control, and the design of more efficient cumbustion systems. Moreover, carburizing has been highly specialized, complete outfits being developed for a specific product, such as gears.

Orderly Arrangement Desirable

The advance in the design of the furnaces has been matched by a parallel improvement in the arrangement of the entire heat treating department. In many of the most recently built plants the heat treating shop is housed in a separate building or given a prominent and distinct place in the department which it serves. The practice of devoting an out of the way corner of the forge shop to carburizing equipment has been practically eliminated except in some of the older establishments. Good lighting and ventilation, as well as the orderly arrangement of equipment, are characteristics of modern shops.

The most common response to the need for carburizing on a production basis is the continuous furnace. In cases where the work is uniform in analysis and shape and the tonnage is sufficient to warrant it, a continuous furnace doubtless is most efficient. Several illustrations will serve to show how the continuous carburizing unit has been successfully applied to specific problems.

In the plant of a large manufacturer of gears a continuous carburizing furnace with a rotating hearth is used successfully. The ring gears to be carburized are covered with a plastic compound and set in piles near the door of the furnace. Next they are placed on trays made of a heat resisting chromium—nickel alloy which stand on short legs and are covered with a circular inverted box of the same material. The covered tray is pushed into the furnace.

Boxes Repacked While Hot

When the hot boxes are removed from the furnace, the carburized gears are lifted from their trays and another batch put in their place, the cover replaced and the charge returned to the hot furnace before the trays and covers lose much of their heat. Since the containers are well above a cherry red, this procedure is unusually worth while from the standpoint of heat conservation. As the treated gears are lifted from the hot trays, they are quenched in one of the baths situated at either side of the furnace door.

The hearth of the furnace revolves, the rate being capable of adjustment between the limits of one revolution in four hours to one in 10 hours. Before the continuous furnace was installed, the gears were treated in "batch furnaces" in which each chamber had to be emptied and filled at the same time. As can be readily appreciated the advantage of the continuous unit in this particular case lay in the saving of labor in charging and in the more efficient use of the heat generated.

The rotary hearth furnace occupied the space required by four of the small "batch" furnaces but it performed the work of nine. In another gear manufacturer's plant, the carburizing equipment consists of three large carburizing furnaces. Here the problem consists of case hardening gears, pinions, splined shafts and other work. The pieces are packed in standard carburizing compound in suitable pots and placed in the furnaces. As the class of steel and degree of hardness desired differ, the time and temperature of heating is different for each batch. Therefore, a continuous furnace was not warranted.

Protects Work by Plating

In this plant the protection of parts where carburization is not desired is accomplished by copper plating. In the case of gears, the plating is done before the teeth are cut. Before plating, the work is washed in a boiling cleansing solution which removes loose oil and foreign material. It then is supported on the anode bus bar of the cleansing tank where the cleansing solution, which is agitated and kept at a boiling temperature by live steam, is assisted in its work by electrolytic action. The cleaned pieces are lifted out, rinsed in clear water and then suspended as cathodes in a cyanide solution for copper plating. Pure copper bars are used as anodes. A voltage of about 3.5 is used, the work being left in the cyanide about 15 minutes. Under these conditions a plating about 0.0005 inch thick is deposited, which is sufficient to resist the attack of carbon during carburization.

Various alloy and straight carbon tools are "pack hardened," that is, carburized on the outside so that they may be oil quenched instead of water quenched. The method is the same as with low carbon parts, except that special pains are taken to quench each separate piece quickly and at the correct temperature. The temperature used for carburizing is low, generally about 775 degrees Cent. (1426), and the tools are packed in quick acting material like hoof and horn chips, with more of the high carbon gases. Moisture in the boxes should be guarded against or the steel will be blistered on the surface.

Economies in pack hardening can be effected by using furnaces built in double units. In one automotive plant the carburizing equipment consists of a number of muffle furnaces with chambers arranged in pairs so as to conserve floor space. The furnaces are fired at the sides instead of at the bottom, one burner being placed at the right near the front and one at the left near the rear. This arrangement is said to maintain a steady circulation of the flame. Ducts pass below the hearth floor connecting the combustion chambers on the sides. The baffle walls rise above the levels of the pots on the hearth so that the flame does not strike the furnace contents. As a result of this design the temperature is greater in the hearth than below it.

The variety of work requiring carburizing calls for a great diversity of equipment; in fact where the output is steady rather than of intermittent character, a different installation is almost necessary for each individual problem. The next and final installment will be devoted to a more detailed discussion of furnace design and to a consideration of fuels and furnace accessories. As announced previously in connection with this series, the discussion of electric furnaces will be concentrated in chapter IX, in order that the subject of electric heat, which has rapidly assumed commanding importance during the past few years, can be covered completely without the interruption that would have occurred had it been treated in earlier chapters.

Issues Progress Report on Metal Fatigue

In Bulletin No. 142 the engineering experiment station of the University of Illinois, Urbana, Ill., has issued the third report on the progress of the investigation of the fatigue of metals being carried on at the university in co-operation with the National Research council, Engineering Foundation, and several manufacturing interests. This report covers tests with two nickel steels, ingot iron, steels containing 0.045 to 1.20 per cent carbon, copper, brass, bronze and monel metal. Steel that had already been subjected to 10,000,000 or more cycles of stress, or near the endurance limit, was retested to determine the effect of the original stressing.

Tests also were made to determine the effect on the static strength and ductility of steel of 10,000,000 cycles of reversed axial stress at or near the original endurance limit; on the length of life of steel of stressing above the endurance limit; and on the endurance limit of overstressing and subsequent heat treating. Chemical analyses, static and impact tests also were made and the hardness was measured. Additional evidence of the existence of an endurance limit for wrought ferrous metals was secured.

Steel Temper Secured by Cold Rolling

(*Concluded from Page* 104)

crossway of the grain. The steel is hard rolled, unannealed and is recommended for flat work only.

Temper No. 2 or half hard steel, is cold rolled, annealed and rerolled. It will stand right angle bends across the grain and rounding bends along the grain.

Temper No. 3, or quarter hard steel, is cold rolled, annealed and rerolled a little less than temper No. 2, and will stand a bend flat on itself across the grain, and a right angle bend along the grain.

Temper No. 4 is rolled less than temper No. 3 after annealing, and will stand bending flat on itself either way of the grain. Steel of this temper is used for forming tubing. It is soft and still will not wrinkle when bent slightly. In order to draw a shell with a flat bottom, which will be smooth and show no cross wrinkles, this temper should be used.

Temper No. 5 is dead soft, annealed and not rolled after annealing. This is used for ordinary drawing and forming.

Temper No. 6 is also dead soft, but will stand more difficult drawing. It receives a special heat treatment and is of selected quality steel.

Intermediate tempers, which vary slightly from those mentioned, are produced to suit certain requirements where a standard temper has not filled the bill; such as buckle temper, tack head steel, and steel to draw up a shell and leave the edge even all the way around and not be wavy so that it requires trimming. This grade of steel is used for rollers for casters, and roller skates.

In ordering steel for special work, a sample or sketch of the article to be made should accompany the order to assure receiving the proper steel for the work. The mill operators will undertake to specify the proper temper and guarantee the steel to form the piece designated. Often steel fails to do what is required of it, although through no fault of the steel. Sometimes the drawing tools have too much clearance, or perhaps too little; too large a radius or too small; the dies are allowed to become rough; the best kind of lubricant is not used; or the speed of the press is not right; usually too fast. Sometimes the hold-down does not hold the metal evenly and the blank slips, or it holds too tightly. The drawing solution if too heavy, will not permit the steel to draw up smoothly. To show the effect of improper lubricant, a case is cited where a difficult draw and forming in one operation was being done. Steel would build up on the die, causing deep scratches on the formed piece, as well as having some pieces break in the drawing. A set of polished dies would not form more than 1000 pieces without scratching. By changing the lubricant from an oil compound to a solution of smooth lime, the breakage stopped and one set of dies formed as high as 80,000 pieces without scratching.

Some years ago trouble was experienced with steel used for bells and gongs. When the gong or bell was formed it would not ring. This was caused by strains being set up in the steel during the forming which required subsequent aging or heat treatment to relieve the strains. When this was accomplished gong properties were restored. Since then a special steel has been furnished which requires no aging or heat treatment.

Fine quality cold rolled strip steel can be produced only by employing most careful methods, close inspection during the process of manufacture, and testing for workability by modern testing machines. It is most essential to start with the proper grade of raw material.

Reviews of New Books

Writing Better Letters

Making Letters Talk Business, by Sherman Perry; cloth; 184 pages, 6 x 9 inches; published by the American Rolling Mill Co., Middletown, O., and furnished by IRON TRADE REVIEW at $1.25, postpaid.

As an appeal to omit the frayed and timeworn expressions that deaden the average business letter and obscure the appeal each should carry, this book compiled by the correspondence department of a live business organization contains much that will make every letter writer's English better and clearer if its principles are followed. The direct statement is advocated and the letter writer is urged to use simple words that mean exactly what he desires to convey to the reader. All "parrot" expressions are frowned upon. "We beg to state," "At your earliest convenience," "Contents carefully noted," "in reply wish to state that" and a hundred others are put in the discard. Use of the right word, careful attention to the opening paragraph, clearness, conciseness, variety and the personal touch are explained. A chapter for the typist is included as a guide to the production of letters that will please the eye after the contents have been prepared carefully to interest the mind. A long list of words frequently misspelled will aid poor spellers.

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Aid to Central European Buying

American Buyers' Guide, 1924-25, by American Chamber of Commerce in Germany, Berlin, cloth, 296 pages, 6 x 9 inches, published American Chamber of Commerce in Berlin and furnished by the IRON TRADE REVIEW, Cleveland, at $3.50 postpaid.

A guide to buyers of merchandise from central European countries, this book presents information of great value to those doing business in that part of of the world. Trade customs and regulations, formation of business groups, a list of fairs and exhibitions, a list of firms and a classified list of export and import firms furnish much that is valuable.

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Guide to Business

Crain's Market Data Book and Directory, by G. D. Crain, Jr.; 505 pages, 6 x 9 inches; published by G. D. Crain Jr. and furnished by IRON TRADE REVIEW at $5 postpaid.

As a reference work on advertising and the structure of industry this book has proved its value in the three editions that have preceded. Figures on production and consumption are given, with an account of buying habits and seasons and the types of equipment used by various industries. An index makes the information available easily. The field of business papers serving various branches of industry is well covered, with much information to guide the advertiser.

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Index to Engineering

The Engineering Index, published by the American Society of Mechanical Engineers; 700 pages, 6½ x 9½; furnished by IRON TRADE REVIEW at $7, postpaid, $1 less to members of the American Society of Mechanical Engineers.

Forty years of service as an index to the literature of engineering have made unnecessary any introduction to this volume, covering 1923, and since the number of periodicals indexed has been increased the work is of increasing value to the engineering profession. This is the fifth volume since the society took over publication of the index from the Engineering Magazine Co.

British Open Foundry Exhibition

Display of Mechanical Devices Show Progress Achieved in International Foundry Practice —Recent Improvements in Molding Machines Mirror Easier Handling and More Accurate Construction—Numerous Exhibits Reflect American Designs

THE second international exhibition of foundry equipment recently was opened in Birmingham, R. O. Patterson, the newly elected president of the Institution of British Foundrymen, presiding. The speaker pointed out the beneficial results obtained in America from the foundry exhibitions which are held there each year, and congratulated the Birmingham chamber of commerce which promoted this exhibition for endeavoring to follow that example in Great Britain. These shows, said Mr. Patterson, are one of the best incentives for achieving progress in foundry practice by means of mechanical devices. The exhibition opened June 19 under the auspices of the Institution of British Foundrymen and the British Cast Iron association. Several foreign organizations were on the executive committee. America was represented by H. Cole Estep, member of the committee on international relations of the American Foundrymen's association; France by Emile Ramas, president of the Association Technique de Fonderie de France; and, Belgium by J. Leonard, past president of the Association Technique de Fonderie de Belgique.

The exhibits, which numbered 85, could be viewed in operation. A power plant and compressed air station were installed in the hall and supplied the pneumatic power required for the various machines; the air was compressed at 100 pounds per square inch. The exhibits included various types of molding machines, also sand preparing devices, sand blast machines, core oils and various foundry accessories. Improvements of existing types of molding machines indicated a tendency toward more simple handling and careful construction.

One of the exhibits which attracted the greatest attention was that of the Foundry Plant and Machinery, Ltd., Glasgow, which manufactures sand slinging machines under the Beardsley-Piper patent. For the first time in Great Britain, two types of sand slingers were shown in operation. The Adaptable Moulding Machine Co., Birmingham, England, which specializes in pattern-drawing hand-operated machines, displayed two rollover duplex machines. These machines permit the utilization of a double-sided pattern plate. They can also be used for core making. The Adaptable company also showed a core machine for split core-boxes; a piston core machine, also for split core-boxes, a sand sifter; and flasks and snap-flasks.

Molding Machines Displayed

The Britannia Foundry Co., Ltd., Coventry, England, exhibited two jar-ramming machines with self-contained lifting apparatus which ram and lift molds up to 560 and 1120 pounds; this company also manufactures machines up to 2 tons capacity. Two roll-over jar-ramming machines; a jar-ramming squeezer machine were displayed; also a patent hand-operated head ramming machine for molds up to 16 x 14 inches with an 8-inch pattern draw. Several molding machines manufactured by the Osborn Mfg. Co., Cleveland, were exhibited by J. W. Jackman & Co., Ltd., Manchester, England. This exhibit included a roll-over jolt machine to take flasks up to 36 inches square; a smaller machine for flasks up to 24 x 30 inches with the roll-over table made of a special aluminum alloy and which is swung by hand; a jolt squeezer and a jolt squeezer stripping-plate molding machine. There were also several machines of the Mumford type. Especially remarkable in this line was the Mumford split pattern jolt-squeeze machine.

A simpler Mumford squeezer machine for small work and a Farwell hand machine were also exhibited. J. W. Jackman & Co. also displayed sand blast machines and cleaning chambers, sand mixers, core shop equipment, testing machines and also a ball cinder mill for securing the valuable metal from brass ashes, sweepings, skimmings, etc., in which the nonmetallic elements are broken up and reduced to powder.

Molding machines built under the

GENERAL VIEW OF EXHIBITION HELD AT BIRMINGHAM UNDER AUSPICES OF BRITISH FOUNDRY ORGANIZATIONS

American Tabor patents were displayed and operated by MacNab & Co., London, Eng. One machine, a Tabor squeezer bottom-ramming split pattern machine, was manufactured in America and exhibited for the first time in Great Britain. The flasks can be stacked on top of each other, ten flasks giving nine complete molds in which the pouring can be effected. All other Tabor pneumatic machines are manufactured in Great Britain, several types were shown.

The Pneulec Machine Co., Ltd., Smethwick, near Birmingham, England, displayed its improved electrically operated jar-ramming molding machine. An oil sand mixer manufactured by the Pneulec Machine Co. was also shown. This exhibit also included a portable electric riddle, a swing grinder and special core oils.

Plates Lacked Machine Work

The molding machines manufactured by Ph. Bonvillain & E. Ronceray, Choisy-le-Roi, near Paris, France, were displayed and operated by the Universal System of Machine Moulding & Machinery Co., Ltd., formed by Bonvillain & Ronceray in London, England. The pattern plates and stripping plates which were used at the exhibition were made in metal without any machining by one molder using the company's patent process; the pattern was one of the new British standard axle-boxes. Bonvillain & Ronceray displayed their high-speed double ramming boxless machine with several other types of their standard machines, a small oil sand mixer, the self-emptying sand mill which was exhibited for the first time in Paris in September, 1923, and various hydraulic devices.

Several other exhibits also indicated associations with America in various ways. Among these one of the most effective displays was by the Sterling Foundry Specialties, Ltd. of Bedford, who showed a variety of rolled steel molding boxes of American design suitable for iron, brass, steel and aluminum foundries. The English company has the right of manufacture from the Sterling Wheelbarrow Co., Milwaukee, Wis. The Mathews Gravity Roller Conveyor is another American idea thoroughly well acclimatized in Great Britain and was shown on the special stand by W. & C. Pantin of Upper Thames street, London.

The Constructional Engineering Co., Ltd., displayed an improved type belted cupolette fitted with Wood's patent blast control arrangement and other improvements. The plant has a melting capacity of 3360 pounds of metal per hour. Another specialty was a sand riddle fitted with motor capable of doing the work of six men. Other items of foundry equipment included ladles, molding boxes, tramps, sand riddles, etc.

John MacDonald & Co. pneumatic engineers of Glasgow, gave prominence to the specialties of the Berkshire Mfg. Co., Cleveland, O., showing examples of the air squeezers, automatic molding machines, pneumatic grinders, drilling machines, etc. In the furnace department Smeeton-Wright Furnace Ltd., London, showed the Chantraine patent multiflame recuperative gas-fired furnaces for melting, reheating and annealing metals. Its foundry ladles are said to afford steadiness and continuity of pouring, whether the ladle is full or nearly empty. Hand jolt ram molding machines were a specialty produced by John M. Terry & Co., of Birmingham. A saving is said to be effected by dispensing with power plant.

The Averbene Co., Ltd., gave prominence to a core and mold sand binder, largely used on the continent and also by many British foundrymen. The exhibit included a number of cores for various component parts used in the cycle and motor trades.

As one of the leading promoters of the Exhibition, the British Cast Iron Research association had a prominent exhibit, displaying examples of their research work and results of various tests which have already been conducted. Good specimens of furnaces were shown by the Selas-Turner Co., Ltd., of Manchester, fired by Selas gas. The industrial research laboratory of the City of Birmingham Gas department showed various forms of testing apparatus devised by the department with types of furnaces considered specially useful for gas heating.

Machine Has Foot Control

Silacene, a fire cement, made by Thomas E. Gray & Co., London, was displayed at their booth. The same company showed ganister parting powder, cement and other necessaries for the foundry. Ritchie, Hart & Co., Ltd., Belfast has produced and exhibited a loam core-making machine, enabling control to be effected by means of the foot leaving the hands free. A number of loam cores ranging from 1½ inches to 18 inches in diameter up to 13 feet long were shown.

Metallographic apparatus were shown by F. Davidson & Co., Ltd., London including a metal works camera designed by F. Rogers, president of the Sheffield Metallurgical association. Specimens of foundry molding sand were shown by John Williams Ltd., of the Foundry Sand Quarries, Birmingham. Yorkshire molding sands with specimens of core binder and facing flour were shown in great variety by Yorkshire Amalgamated Products Ltd., Doncaster.

W. T. Nicholson & Clipper Co., Ltd., Manchester have anglicised an American idea in their "Klincha" lever belt lacing machine. The modern necessity of refractories for resisting high temperatures has led to the production by the General Refractories Co., Ltd. of Sheffield of magnesite and chrome bricks of which large sales were made to steel founders during the war. Special sands for foundry requirements have also been produced with "Fluorcal" a flux for ironfounders. Air compressors were shown by R. J Richardson & Sons Ltd. of Birmingham giving pressures of 90 to 100 pounds per square inch.

Shows Iron Specimens

Several firms such as Bradley & Foster Ltd., of Darlaston and the Shotts Iron Co., Ltd., Edinburgh exhibited specimens of foundry iron showing low-sulphur and phosphorus contents. Among a variety of ingenious weighing and testing machines. W. & T. Avery, Ltd., of Birmingham gave prominence to their transverse tester for cast-iron bars for testing the breaking strength and deflection. Some specimens of revolving brushes for speedy cleaning of castings were shown by Canning & Co., Ltd. of Birmingham. Two large stands were occupied by the Carborundum Co., Ltd., Manchester, England. A speciality was a wheel designed for the grinding of aluminum.

Spermolun Ltd., of Halifax, exhibited their rotary core machine and sand mixing and milling machine. The non-ferrous department was well represented by T. J. Priestman of the Cupro Foundry Birmingham, which showed numerous special alloys in aluminum, brass, gunmetal, phosphor bronze, nickel and zinc.

During the exhibition, special papers were read in the Lecture room. Competitions on core making, molding and pattern making were followed by many foundry employes and students, and a number of prizes were awarded to the best contributions.

Metallurgical Fellowships To Be Awarded

Under a co-operative agreement with the United States bureau of mines, Pittsburgh station, the Carnegie Institute of Technology, Pittsburgh, announces the establishment of four fellowships in metallurgy. These fellowships are open to graduates of universities, colleges and technical schools whose training in physics, chemistry, or metallurgy qualifies them to undertake scientific research. The fellowship appointment is for a period of 10 months.

About 70 turbo-blowers are installed in this country, seven supplying blast for bessemer converters and the remainder for blast furnaces.

Lose Indian Trade

New Tariff On Steel Is Bar to Exports From America

Washington, July 8.—Active operation of the steel industry protection bill of India, which gives complete effect to the British Indian government tariff board's recommendations for the grant. of protection to the production of steel in India, described in IRON TRADE REVIEW, June 12, will be in force for three years, and naturally makes the position of American steel producers in that market less advantageous. The market already has been adverse, since the high value of the dollar has precluded price competition with countries whose currencies are at a low rate of exchange.

The recommendations of the Indian tariff board were framed to obtain for the Indian steel producer an average selling price of 180 rupees a ton, and it is proposed to increase the import duty on structural steel shapes. In addition, it was recommended that protection in the form of a bounty be accorded rails and fishplates and that increased duties be imposed on common wrought iron and rods and a corresponding increase of duty on common steel bars, the United States department of commerce is informed through consular reports.

Steel producers in the United States formerly made their best showing in exports to India in galvanized sheets and some rail business. Continental European prices, however, were about £4 a ton below their quotations on sheets at the bginning of 1924. Belgian and British producers have strengthened themselves in the Indian market in the last year or two, while American firms have suffered great losses. Particularly Belgian producers have been undercutting Americans. Only in galvanized sheets and tin plates has the United States held its ground.

Consumption of steel in India has been 700,000 to 800,000 tons annually, although more recent consumption has been at the rate of about 700,000 tons. Economic developments, such as the construction and improvement of railways, port facilities and irrigation schemes, requiring much steel, are under consideration. Many of these projects, however, call for government financing and may have to be kept in abeyance until general economic conditions improve in the countries to which India exports its surplus products. The Indian railways call for the heaviest purchases of steel equipment. Next to this requirement the bulk of the steel trade is in shapes, plates, bars and joists.

Imports of iron and steel into India during 1923 were 815,857 long tons, a loss of 13 per cent of the receipts during the preceding year, although a gain of 32 per cent over the importation in 1921. Losses in pig iron, iron bars and channels and rails and accessories were particularly heavy. Imports of structural steel and sheets and plates showed a considerable increase.

Old stocks in the Indian market have been cleared away and fresh ones are being moved as fast as they are imported, as firms are unwilling to stock or speculate because of fluctuations in prices and exchange. Requirements for the Sukkur barrage project constitute the largest source of demand, but material for this will not be imported immediately.

Secondary Metals Output Gains Sharply in 1923

Recovery of the more valuable secondary nonferrous metals in 1923 was much greater than in 1922, according to a report by geological survey of the department of the interior. Total metals recovered was 833,000 tons valued at $205,418,600.

Zinc was the only secondary metal showing a decrease in quantity recovered in 1923, but more zinc dross was exported than in 1922 and more lithopone and zinc dust was made from dross skimmings. The estimated zinc content in remelted brass increased 4720 tons over 1922.

Tonnage of secondary metals recovered in 1922 and 1923 is as follows:

	Short tons 1922	1923
Copper, including that in alloys other than brass	144,100	193,200
Brass scrap remelted	274,000	311,000
Lead as metal	75,480	96,430
Lead in alloys	84,080	98,060
Zinc as metal	69,314	65,210
Zinc in alloys other than brass and in chemical compounds	10,250	8,630
Tin as metal	6,570	7,892
Tin in alloys	12,940	22,318
Antimony as metal	182	245
Antimony in alloys	6,908	7,776
Aluminum as metal	7,190	6,800
Aluminum in alloys	9,100	14,500
Nickel as metal	104	177
Nickel in nonferrous alloys	1,408	1,373

Draw First Steel

Latrobe, Pa., July 8.—With a liberal order book ahead, the first cold-drawn steel made in the new plant of the Anchor Drawn Steel Co., was produced June 30. The plant is to produce high speed and carbon steel drill rods and will specialize in the production of high grade cold-drawn products.

The plant of the Railway Steel Spring Co. will be in full operation within a short time. One department is already working full while another is being put in readiness. The Pittsburgh plants of the company have been shut down and all of the equipment has been brought here.

Advances in Union Wage Scales Compared

Washington, July 8.—Bulletin No. 354 relating to the union scale of wages and hours of labor of nearly 900,000 union members in the United States as of May 15, 1923, and showing comparison with preceding years, has just been issued by the United States department of Labor through the bureau of labor statistics. The report embraces returns from 66 leading industrial cities, and 12 groups of industries covering 89 trades or occupations.

In the average for all trades collectively the hourly wage rate on May 15, 1923, was higher in the United States than in any preceding year, being 9 per cent higher than on May 15, 1922; 84 per cent higher than in 1917; 111 per cent higher than in 1913; 123 per cent higher than in 1910; and 135 per cent higher than in 1907.

In 1923 the regular hours of labor were at the same level as in 1922; 4 per cent lower than in 1917; 6 per cent lower than in 1913; 7 per cent lower than in 1910 and 8 per cent lower than in 1907.

Sixty-eight per cent of all the union members covered had a regular working week of 44 hours or less and 18 per cent had a 48-hour week. Of the metal trade members 56 per cent had a 48-hour week and 35 per cent had a week of 44 hours or less.

The average rate per hour for all building trades covered was $1.068, for the metal trades 83.9 cents and for the newspaper printing trades $1.047.

To Concentrate Plants

Timken-Detroit Axle Co., Detroit, manufacturer of automobile and truck axles, plans concentration of all its manufacturing operations in its plant on Clark avenue, that city. The company now operates the Clark avenue plant, two on Waterloo avenue, Detroit, and one in Cleveland. Operations are planned to be brought to a close about Sept. 1 in the Cleveland and one Waterloo avenue plant. The other Waterloo plant is to be closed out by the end of the year.

The plants and equipment, which are carried on the books at nominal figures, are being written off, so that the proceeds from the sale of the plants will be added to surplus. Present plans are to liquidate the properties slowly. Haldeman Finnie, assistant to the president, is handling the sale of the Detroit properties and O. J. Ashman, vice president and general manager of the Cleveland plant, is active in the disposition of the material in that city.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

William A. Durgin, for two and a half years head of the division of simplified practice of the department of commerce, has left the government work to resume his former post with the Commonwealth Edison Co., Chicago. He was borrowed from that position by Secretary Hoover when the latter established the division of simplified practice to help industry eliminate waste through the reduction of excess varieties.

Ray M. Hudson, assistant chief of the division since it was created, has been appointed to succeed Mr. Durgin. Before entering the government work, Mr. Hudson was connected with the automotive industry, having been with the Franklin Automobile Co., Syracuse, N. Y., and the Holt Mfg. Co., Peoria, Ill.

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Robert W. Weidenbacker has gone to Java where he will be assistant manager of the office in Malaysia for the Baldwin Locomotive Works, Philadelphia.

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William Smith president of the New Process Copper Casting Co., Pittsburgh, now is connected with the Lumen Bearing Co., Youngstown, which recently took over the New Process company.

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R. D. Bean, recently was appointed chief engineer of the Brown Instrument Co., Philadelphia, manufacturer of pyrometers, thermometers and other indicating and recording instruments.

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Robert H. Finkernagel, until recently general manager of the Interstate Foundries Co., Cleveland, is sales manager of the foundry division of the Danville Iron & Steel Corp., Danville, Pa.

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E. R. Doud, formerly with the Iron Trade Products Co., Pittsburgh, is now associated with J. W. Dickson & Co., Commonwealth building, Pittsburgh, in the sale of pig iron, fluorspar and dolomite products.

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John L. Spitzer has succeeded William E. Friedman as New York manager of E. B. Leaf Co., Philadelphia. Mr. Spitzer has been connected with the New York office of this company for eight years.

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E. R. Jackson, who for the past year has been connected with the Los Angeles sales organization of Milton Pray Co., San Francisco, has been appointed Seattle manager and will make his headquarters in the L. C. Smith building.

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W. H. Foster, president of the General Fireproofing Co., Youngstown, recently returned to that city from a trip abroad. He was accompanied by F. K. Rhinis, export manager for the General company. They visited France, Belgium, Holland and Wales.

F. M. FARMER
Recently elected president of the American Society for Testing Materials as announced in IRON TRADE REVIEW, July 3

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B. A. Wallingford, of the Walter-Wallingford & Co., Cincinnati returned June 30 from a two months' visit to Morocco, where Mr. Wallingford's brother-in-law General DeChambrun is in command of the French expeditionary forces.

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L. W. Byrne, formerly with the Wilmarth & Morman Co., Grand Rapids, Mich., has been made general manager of the Delahunty Machine Co., Pittston, Pa. The Delahunty company builds textile and mining machinery and does foundry and machine shop work.

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E. G. Biechler, sales manager of the Delco-Light Co., Dayton, O., who has been acting general manager since February, has been appointed general manager, succeeding R. H. Grant, who has been made vice president and general sales manager of the Chevrolet Motor Co., Detroit.

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H. W. Edwards has been made plant manager for the Haydenville Co., Haydenville, Mass., manufacturer of plumbers, steamfitters, gas, air and oil brass and iron castings. Mr. Edwards previously had been in charge of a number of foundries including the Pittsburgh Gauge & Supply Co., Pittsburgh, Pratt & Cady Co., Hartford, Conn., American Steam Gauge & Valve Co., Boston, Canadian Ingersoll-Rand Co., Sherbrooke, Que., and the brass valve and fitting department of the Walworth Mfg. Co., South Boston, Mass.

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Thomas Edward Hooper, for 17 years with the Seattle Electric & Municipal railways in charge, at various times, of their drafting, shop work and construction departments, joined the sales organization of Bethlehem Steel Co. on the Pacific coast and will make his headquarters in the Matson building, San Francisco. Hooper is at present making an extended visit of the Bethlehem plants in the East and upon his return will be in charge of sales of railroad and street railway products, such as rails, track, special work, rolled steel wheels and axles, railroad spikes and other track accessories.

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Richard F. Grant, vice president of the M. A. Hanna Co., Cleveland, pig iron, coal and ore producers and merchants, has been elected president of the Chamber of Commerce of the United States, to succeed Julius Barnes of Duluth. The latter had served two terms and declined to remain another year. Mr. Grant was president of the chamber of commerce at Cleveland in 1923, succeeding Newton D. Baker. He is president of the Susquehanna Collieries Co., vice president of the Hanna Furnace Co., president of the Virginia Ore Mining Co. and a director of the Cleveland Trust Co., as well as a number of other interests. He was born at Owatonna, Minn., in 1879 and took the degree of Ph. B. at Yale university in 1899 and a law degree in 1901.

Japan Working Out Its Reconstruction Plan

Washington, July 8.—Active buying by Japan of construction materials in the United States with which to rebuild permanently the portions of the cities devastated by the earthquake last summer is anticipated by officials of the department of commerce within the next two or three years. It is considered doubtful whether a definite building program will be evolved in time to permit much buying this year. Japan is taking quantities of tin plate, boiler tubes, rails, locomotive steel, sheets and some structural materials from the United States. It is evident that these purchases have been to fill the ordinary needs of that country only. The reconstruction program has not begun.

It is pointed out that Japan is well stocked with iron and steel and other construction materials. This is particularly true as to Japan's needs in steel sheets, wire and nails. The yen has been at low levels, speculation has been heavy, and the Japanese diet, which convened last week, is beset with political complications even more complex than those of the American congress. These factors are expected to delay the drawing up of a definite reconstruction program.

A presumption frequently expressed in this country that Japanese business men will attempt retaliation against the United States because of the Japanese exclusion clause in the immigration law is not taken seriously by officials here. The Japanese last autumn negotiated a huge loan in this country and in England. It is estimated that at least half of the loan of $150,000,000 made in this country will go toward reconstruction. Taking into consideration that Japan exports 80 to 85 per cent of her silk output to this country, further ground is seen for continuance by Japan of cordial commercial relations with the United States.

The general situation in Japan is showing some improvement, according to consular reports to the department of commerce. Foreign trade returned to more normal levels in May, with a sharp reduction in the import excess and record exports, particularly of cotton textiles and yarns.

Swedish Industry Active

Washington, July 8.—According to reports from the Nydquist & Holm plant at Trollhattan, Sweden, the locomotive industry is expanding into new foreign markets, says Commercial Attache Sorensen, Copenhagen. While the contract for delivery of 500 Swedish locomotives to the Russian government will be filled by August, new orders have come in from other sources that will maintain production at the plant. Brazil has just closed an order for about 30 locomotives, and negotiations are going on with certain Balkan States for early deliveries. Work has commenced on 20 electric locomotives for the Swedish State railways.

New Mill Work Progresses

The Dominion Alloy Steel Corp., Sarnia, Ont., is making good progress in getting its site ready for the erection of the first unit of its new plant. Sewers, water mains and spur lines are being constructed. It is expected that within the next few days work on the water mains will be completed, when foundation work on the plant proper will be started. The plant will be constructed in three units, the first of which will be a sheet mill with a capacity of 30,000 to 36,000 tons per annum.

On 5-Day Week Basis

Detroit, July 8.—All employes of the Ford Motor Co. have been placed on a five-day-week basis. Workmen in the various plants were on this basis for two weeks prior to the order affecting all departments. The new order is effective for 12 weeks and applies to 25,000 office workers. The full Saturday holiday for three months is to be taken without pay. Heretofore the employes worked only half a day on Saturday.

To Settle Claims

Detroit, July 8.—Creditors of the Velick Scrap Iron & Machinery Co., of this city, in all probability will accept the offer of the company to settle all claims on a basis of 50 cents on the dollar of which 40 per cent is to be paid immediately in cash, the balance of 10 per cent to be covered by notes due and payable one year from date. The company recently was petitioned in involuntary bankruptcy.

Obituaries

ROBERT H. CARLISLE, vice president of Strong, Carlisle & Hammond Co., Cleveland, mill supply and machinery dealer, died at his home in that city on July 5. Mr. Carlisle was born on a farm near Cleveland in 1843 and ran away from home when 15 years old to join the Union army. After the Civil war he joined his brothers in a carriage business at Delaware, O. In 1880 he came to Cleveland and in 1887 became associated with E. E. Strong and formed the firm of Strong, Carlisle & Turney. Later when Mr. Turney left the firm L. J. Hammond was admitted and the name changed to the Strong, Carlisle & Hammond Co. One son, Tyler W. Carlisle, now is secretary of the Strong, Carlisle & Hammond Co.

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Hugh Beeson, formerly vacuum specialist with the American Can Co., New York, died June 27 at Monrovia, Cal., aged 35 years.

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William W. Smith, president and managing director of John Hassall, Inc., Brooklyn, manufacturer of wire, nails and rivets, died June 24.

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Richard Worr, manager of the Worr Co., 165 Sterling road, Toronto, Ont., died June 28 after a protracted illness. The company operates gray iron, brass and aluminum foundries.

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Walter Kennedy, aged 64, consulting engineer, died July 6 at the Allegheny General hospital, Pittsburgh. He was a brother of Julian Kennedy, consulting engineer, with offices in the Bessemer building, Pittsburgh.

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Colonel J. Wesley Allison, Morrisburg, Ont., founder of the Canadian Tin Plate & Sheet Steel Co., died June 22, aged 62 years. In his early business years in New York he attained wealth in New York in industrial enterprises and on his return to Canada he established the tin plate business which produced the first tin plate made in Canada, in 1907.

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M. P. Cromling, director of purchases of the Willys-Overland Co., Toledo, died suddenly in his office, June 28. Mr. Cromling had suffered from illness but recently had recovered sufficiently to return to his office. He was formerly associated with the General Motors Co. in its purchasing department. He began his business career in the purchasing office of the Lorain Steel Co., Johnstown, Pa.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

OPERATING what is reported to be the only steel foundry in Florida, the Florida Machine & Foundry Co. is being incorporated with $500,000 capital. Its plant has been built and consists of a steel foundry building 85 x 212 feet, warehouse 60 x 120 feet, pattern shop and storage 60 x 120 feet and a machine shop 60 x 140 feet. Steel and gray iron castings are produced, both for regular customers and for jobbing users. An electric furnace supplies steel for the foundry. F. G. Russell is president. He is proprietor of the Florida Machine Works, which will be absorbed by the new company. F. G. Russell Jr. is vice president and treasurer and O. M. Smith, secretary.

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THE Wright Co., Atlanta, Ga., has completed a new plant at 425 Whitehall street, where it will expand its hotel equipment jobbing and manufacturing business. The new building is a 3-story, 60 x 200-foot plant, considerably enlarging the space formerly used.

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ANNOUNCEMENT is made by the Westinghouse Electric & Mfg. Co., that arrangements have been completed for enlarging the company's works at Mansfield, O., by the addition of two buildings, one, a 1-story steel structure and the other of steel and mill construction, four stories. Floor space will be increased 140,000 square feet.

* * *

WINTER, WOLFF & CO., INC., 42 Broadway, New York, have been appointed American agents for sectional foreign producers of dead burned magnesite, fluorspar, bauxite and other industrial chemicals. M. D. Strong, who formerly imported manganese ore from Brazil, will be in charge of the industrial chemicals department.

* * *

A LARGE increase in capacity will be gained by the Walker Mfg. Co., Racine, Wis., automobile jack manufacturer, when a 2-story addition to the factory is completed about Sept. 1. The addition will house the offices, now located on the floor of the factory. This space will be turned over to the production departments.

* * *

A MACHINE for cleaning cement bags by the beating process, with provision for the recovery of the residue, developed by Alfred Wirth, vice president and manager of the Wirth Cement Products Co., Fond du Lac, Wis., will now be made in quantities. The company heretofore has made cement drain tile and other materials and will install machinery to manufacture the cleaning equipment.

* * *

DESIGNED for the manufacture of silk machinery, the plant of the Nanticoke Foundry Co., Nanticoke, Pa., has been taken over by the Nanticoke Sash Weight Co., which will produce sash weights and do a general jobbing foundry business. The company has been incorporated in Pennsylvania with $5000 capital. J. W. Kirby is president, J. F. Kirby, vice president and treasurer and K. F. Kirby, secretary.

* * *

TO PROVIDE space for a machine shop and finishing department in connection with its foundry, the Jefferson Union Co., Lockport, N. Y., manufacturer of castings for plumbers supplies, has bought the plant formerly occupied by the Republic Packing Co., adjoining its foundry. Formerly machining of castings was done at the company's machine shop at Lexington, Mass.

* * *

IT IS expected that the first unit of the new power plant of the Houston Lighting & Power Co., Houston, Tex., will be finished early in July. It will have a capacity of 40,000 kilowatts or 56,000 horsepower. The capacity of the new plant when completed will be 152,500 kilowatts, it is stated. The plant will be housed in a new building of brick, concrete and steel construction.

* * *

DEFINITE details of a four year building program for the development of hydroelectric power were announced recently by officials of the Columbus Electric & Power Co., Columbus, Ga. The company contemplates a total improvement of about $6,000,000. Initial development will include construction of a 120-foot dam at Bartlett's Ferry, north of Columbus, developing 80,000 horsepower.

* * *

AGREEMENT has been entered into by the Chicago Pneumatic Co., New York, builder of air compressors, and the Indiana Pump Co., Indianapolis, manufacturer of air-lift equipment, whereby each organization will use jointly and exclusively the products of the other on all their air-lift installations. The engineering staff of both companies is available to prospective users of this class of equipment and technical consultation may be obtained at any branch of either company.

* * *

CHICAGO interests as yet unidentified have completed a deal with the LaCrosse, Wis. Industrial association for taking over the plant built four years ago for the Matthews Mfg. Co., now defunct. The association has purchased the property from the trustee for $41,000 and will resell it at the same price. There are 13 buildings with 45,000 square feet of manufacturing space. The new owners will manufacture ice boxes and refrigerators, and expect to be ready Aug. 1 to commence production.

* * *

THE war department has placed the contract for the 58 gates of the Wilson Dam Muscle Shoals development on the Tennessee river with the Hardie-Tynes Mfg. Co., Birmingham. The gates will contain 750 tons of iron and steel castings. Delivery will begin within 90 days and will be part of the completion work of the big project. The Hardie-Tynes plant has just shipped an 800-horsepower corliss engine to San Domingo and has other contracts for these engines in hand besides some work from the government on reclamation machinery, and water power machinery.

* * *

THE Continental Gin Co. started construction early in June of the first units of a $1,000,000 building program it proposes to carry out in East Avondale, at Birmingham, Ala. The initial work includes construction of a foundry and machine shop plant at a cost of about $350,000, according to an announcement by Eugene Munger, superintendent for the company. The company has a 20-acre site at East Avondale, and the work now being carried out will be to replace two foundries the company now operates in another part of Birmingham. The initial unit will be finished by December, according to present plans, and likely ready to start production early in 1925. The H. K. Ferguson Co., Cleveland and New York, is engineer and architect.

Two Mergers Are Proposed of Plant Groups

Plans for the merging of two important groups of manufacturers in the iron and steel industry are in a formative stage. In one of these cases it is intimated that the slump in the automobile industry upon which these manufacturers in recent years have been depending in a large way for their business, has brought about the movement to join forces in order to reduce operating costs and intensify marketing efforts.

One of the proposed combinations embraces a number of companies in Ohio, West Virginia and New York which are engaged in the production of certain specialties in the steel forging line. Meetings on this subject were recently held at Pittsburgh but discussion of the matter has not gone beyond the preliminary stage.

The other proposal is directed at the merging of eight or ten stamping and enameling companies with plants in northern and southern Ohio, West Virginia and western Pennsylvania. This proposition has been under deliberation for some weeks but agreement has not yet been reached on the question of capitalization and other details.

Among the plants that are understood to be represented in the negotiations for the merger of stamping an enameling companies are the Federal Enameling & Stamping Co., Pittsburgh; Columbia Enameling & Stamping Co., Terre Haute, Ind.; Belmont Enameling & Stamping Co., and the Canton Enameling & Stamping Co., both of Canton, O.; the American Enameling & Stamping Co., Massillon, O., and the U. S. Stamping Co. of Moundsville, W. Va

Opposes Five-Day Week

Washington, July 8.—A committee was named at the annual session here last week of the National Association of Sheet Metal Contractors to develop harmonious relations with similar committees of allied interests, including the American Zinc institute, the Copper Research association; the American Institute of Architects, the American Society of Heating and Ventilating Engineers, the National Warm Air Heating and Ventilating association and others.

Report of the labor committee of the sheet metal contractors' association recommended that the association go on record as opposing the five-day working week. The committee report was adopted. "There is a tendency to eliminate work on Saturday," said the report. "We believe this is an economic mistake, as it will only increase the cost of production." E. B. Langenberg, of the warm air furnace committee, told of research work in the tests of heating apparatus to be conducted at the University of Illinois.

Various local branches of the national organization are planning to cooperate in establishing metal work trade schools for apprentices. The association is committed in principle to the open shop.

Suspend Scrap Increase

Chicago, July 8.—Proposed increased freight rates on iron and steel scrap from Texas common points and Dallas -Ft. Worth groups to St. Louis, Kansas City, Chicago, Milwaukee, Omaha and Davenport, Iowa, territories have been suspended by the interstate commerce commission until Oct. 23. Prior to this date the commission will take testimony from the Scrap Steel Consumers and Shippers conference, recently formed in this territory to adjust rate matters with the carriers. It is claimed that increases over the present rates would materially lessen shipments.

To Develop Canadian Ore

Toronto, Ont., July 8.—A syndicate of Glasgow, Scotland, financiers has purchased 55 iron ore claims at Goudreau, in northern Ontario, from Harry Dreany, of Toronto, and associates for a sum stated approximately at $1,500,000. Mr. Dreany states that the syndicate contemplates expending about $12,000,000 on the enterprise including the construction of a concentrating plant and the development of 180,000 horsepower hydroelectric energy on the Missinaibi river.

Steelworks Wage Earnings Increased in May

Washington, July 8.—Although average earnings of iron and steel employes in the United States indicated considerable loss in May over the corresponding month a year ago, the average increased slightly over that of April, according to reports to the department of labor. Average earnings of employes were $132.30 in May, as compared with $130.42 in April. May employment in the iron and steel industry dropped about 12 per cent, while the general employment in 52 industries decreased 4.2 per cent.

The greatest decreases in general employment and in payroll totals in May were shown in the east-north-central geographical division. These decreases were 5.7 per cent and 7.5 per cent respectively. Comparing May and April reports from identical establishments, increases in employment are shown for May in 10 of the 52 industries, and increases in payroll totals in nine industries.

Comparison of employment in identical establishments during one week each in April and May shows that the foundry and machine shop products industries decreased 4.2 per cent in employment and 4.6 per cent in payroll earnings. The machine tool industry decreased 3.9 per cent in employment and 4.1 per cent in payroll totals in similar periods.

Group life insurance policies have been issued to employes of the Bridgeport Casting Co. at Bridgeport, Conn., and the Oklahoma Woodchuck Zinc Lead Co. at Cardin, Okla., through arrangements with the Metropolitan Life Insurance Co.

Average Monthly Wages in Iron and Steel Industry, and Number of Employes

	Number of establishments	Number of employes	Payroll for half month	Average wage per month	Average wage year previous
May	217	253,980	$16,791,392	$132.30	$135.91
April	209	178,911	18,188,376	130.42	118.78
March	216	283,879	19,549,452	137.73	123.52
February	170	276,986	17,893,043	129.19	122.24
January, 1924	209	258,736	16,559,659	128.00	120.59
December, 1923	197	233,704	15,279,383	130.80	122.88
November	197	243,187	11,759,684	96.71	98.75
October	186	242,171	15,498,307	127.99	115.40
September	178	216,842	13,726,203	126.58	109.56
August	180	235,561	15,369,508	130.49	100.62
July	176	225,470	13,080,477	116.02	83.26
June	166	216,264	14,057,037	129.98	94.58
May	175	241,351	16,080,907	133.08	93.52
April	182	218,591	13,062,933	119.52	88.14
March	189	241,068	14,885,085	123.52	89.02
February	187	223,615	13,668,599	122.24	85.58
January	184	217,303	13,032,701	119.42	78.70
Averages:					
1923	183	229,594	14,125,068	123.01	.....
1922	118	147,882	7,378,535	98.78	.....
1921	114	117,223	5,869,438	100.12	.....
1920	105	172,318	13,015,883	151.06	.....
1919	105	154,244	9,989,098	128.22	.....
1918	97	180,859	10,734,114	118.74	.....
1917	97	180,088	8,327,492	92.49	.....

July Machinery Prospects Better

Few Large Orders Break Monotony of Quiet Market but Sentiment Generally Is Brighter as Inquiries Show Improvement—Crane Activity of Last Week Loses Strength—Used Equipment Still Has but Fair Demand

SALES of machine tools and equipment in the first few days of July were encouraging, the volume of business in most cases equaling or bettering the average of demand in June. Few large orders, involving more than a single tool or two each, are breaking the monotony of the present quietness. One of the largest recent inquiries is that of the General Electric Co. for two machines to cost approximately $130,000. Industrial demand comprises the bulk of going business, railroad orders being few and scattered. The Santa Fe and the Burlington were recent buyers. Among the largest awards of the week was that of the Brooklyn Edison Co., New York, for 20 standard machines for the maintenance shop at its new power station.

A fair rate of selling still is maintained in the crane market although it has lost strength from the activity of last week. The Carnegie Steel Co., and the Chesapeake and Ohio railroad each closed on five cranes last week and an interest in Dayton, O., for six. Few other large orders were placed. The Florida East Coast tentatively has placed a 75-ton crane with an eastern builder.

Manufacturers and dealers specializing in one or a few types or grades of machines are having a difficult time to maintain operations on a profitable basis, but those interests with diversified lines are fairly active. Demand for large machine tools is not heavy, but buying of small machines, portable and inexpensive equipment is steady.

Used equipment has but a fair demand, there not being enough business to maintain more than a fair degree of activity among the many dealers. This class of dealers is not as busy as recently.

Industrial Buying Comprises Bulk of Demand

NEW YORK, July 8.—Outstanding in an exceedingly listless machine tool market is an award by the General Electric Co., Schenectady, N. Y., of two machines estimated to cost approximately $130,000. One is a 113-inch 45-foot engine lathe and the other an 8-inch spindle horizontal floor bore. Both machines are for Schenectady. A sizable order also is that of the Brooklyn Edison Co., comprising approximately 20 standard machines for the maintenance shop at its new power station. It is estimated that the order involves an expenditure of $25,000 to $30,000.

Included in scattered awards are a 2-spindle frame drill for the Atcheson, Topeka & Santa Fe railroad, and a 2500-pound steam hammer for the Southern railroad. This latter order was reported recently as informally placed. As a result of the holiday on July 4, many of the sales offices were closed from July 3 to 7 this contributing to the already dull situation. The crane market is featureless.

Buying of foundry equipment appears even less active than a fortnight ago. On some lines such as sand cutters and sand blast equipment, noted in a recent issue as having undergone a spurt in demand, buying has again fallen off. New construction work for which equipment would be required is perhaps at as low an ebb as at any time this year, barring possibly the first few weeks in January. Sellers generally are now counting on little in the way of a substantial improvement much before fall.

While reduced operations at the various jobbing foundries are undoubtedly accounting for some buying that would not be noted otherwise at this time, the extent to which these reductions have been made in a number of quarters has created an atmosphere of pessimism, which precludes any buying that is not absolutely necessary. In a number of instances foundries are now practically closed down, while in many others operations are hovering around 20 to 30 per cent.

Market Leads To Quietness

CINCINNATI, July 8.—A tendency toward quieter conditions is apparent in the machine tool market. A few sellers of new equipment report moderate inquiry from scattered districts, some of which give outward signs of developing into actual business. Some dealers characterize the market as dull with no prevailing inquiries to change the tone of conditions that existed during the past several weeks. Sales that are consummated are of a necessary character and represent merely replacement needs rather than new installation. The Cincinnati Planer Co., sold several used machines last week. Several sizeable inquiries are before the trade, but buyers are unwilling to close at this time. Sales of used machinery are difficult to close even though the bulk of the few reported consist of odds and ends and small items such as bench lathes and drills. Several machine tool plants closed down July 3 for a period of a week or 10 days.

Selling Rate Fair

PITTSBURGH, July 8.—In spite of of the holiday interference with business last week, a fair selling rate in both cranes and machine tools was enjoyed by dealers and manufacturers' representatives in this territory. In cranes the feature was the placing by the Carnegie Steel Co. of orders for two each soaking pit, 40-ton and 10-ton cranes, and one cinder crane for Homestead works. A manufacturer in Dayton placed an order with the Northern Engineering Works for six cranes, 5-ton and 10-ton capacity. The Carnegie Steel Co., has not ordered its machine tools for Homestead, action being deferred again. Formal orders were received on the Brackenridge, Pa. high school list, three lathes and a milling machine going to W. K. Stamets, a drill, hack saw and grinder going to the Reliance Machinery Sales Co., a wood joiner and small grinder going to the Brown & Zortman Machinery Co and a motor-driven pattern-maker's lathe going to Somers, Fitler & Todd Co. The McCoy-Brandt Machinery Co. shared in the remainder. The Brown & Zortman company also received orders for a few small items on the Carrick, Pa. high school list which likewise was distributed among several dealers. The Reliance Machinery Sales Co., also dis-

posed of two grinders to western and southern users, an automatic reamer to an Ohio user, two or three buffing machines to local brass shops, and a new 200-ton wheel press to a local manufacturer as well as large railroad type combination punch and shear and a small bending machine to other users.

The Somers, Fitler & Todd Co., also received a confirming order for five or six items for a trade school in the Wheeling, W. Va., district. Action was not taken on the list from the City Garage, Pittsburgh, referred to last week, and several other small lists are pending. June orders for gasoline-powered shovels taken by the Pawling & Harnischfeger Co. and for similar equipment by other manufacturers were heavy. The Sutton-Abramsen Engineering Co. reports recent orders for straightening machines as follows: Three to the Vanadium Alloys Steel Co., Latrobe, Pa., one for ¼ to 1-inch rounds, another for ¾ to 4-inch rounds, and one for ½ by 5/16 to 3½-inch flats and shapes of equivalent sections; one to the Union Drawn Steel Co., Beaver Falls, Pa., for ¾ to 4-inch rounds; one to the Anchor Drawn Steel Co., Latrobe, Pa., for 5/16 by ½ to 2½ by ½-inch flats and shapes of equivalent sections; one to the United Alloy Steel Corp., Canton, O, for ¼ to 1-inch rounds; one to the Illinois Steel Co., Chicago, for ¾ to 4-inch rounds, and one for the Fretz-Moon Tube Co., Butler, Pa., for ⅜ to 1⅜ inch outside diameter tubes. It also sold a 100-pound upright cushioned helve hammer to the Keystone Driller Co., Beaver Falls, Pa.

July Outlook More Encouraging

CLEVELAND, July 8.—The outlook for machine tool and equipment business in July is more encouraging. Inquiries have been better in the past few days than in the similar period of June. Sales have not increased, but some interests report a better tendency among buyers, appropriations being slightly easier to obtain for current requirements. No large sales were made last week, few orders involving more than a single machine. The Libbey-Owens Sheet Glass Co., Toledo, O., has shortened its list recently revised for a new plant. The American Furnace & Foundry Co., Milan, Mich., also is in the market for a few tools to complete its gray iron foundry. Little railroad business is coming into this territory, no sales to such interests being reported by manufacturers in this district for last week.

Used equipment sales continue to drag along, with a few dealers getting a fair amount of business. Bargain hunters making inquiries for used machinery look encouraging but the prevailing tendency still is to postpone purchases. Crane orders are no heavier although inquiries are more numerous.

July Prospects Better

CHICAGO, July 8.—July has begun much more auspiciously than June ended, for the machinery trade here. The long list of tools for which the Chicago board of education has been inquiring will be placed at the July 9 meeting of the board, it is understood, and to this list have been added one squaring shear, one folding machine, one burring machine and one wiring machine for Spalding school. Two new and two used planers have been purchased recently by Milwaukee interests one of the new ones going into the Riverside pumping station and a used one into the plant of the Pawling & Harnischfeger Co. The Pullman Co. has placed two shapers and one milling machine. The Burlington railroad has now placed all of its tools for its Galesburg, Ill., shops. The New York Central railroad is inquiring for several tools, including a car wheel lathe. The Santa Fe railroad, according to rumor, has held up its list indefinitely. Most machine tool houses report fair placements of individual tools.

June Sales Are Low

BOSTON, July 8.—Almost total absence of orders for new machine tools during the last week of June brought the total for the month below that of May on the books of most Boston dealers. One of the leading sellers reports June as the dullest month since 1921 and July is not starting off with any great show of improvement. The holiday which interfered with buying during the past week has been the excuse for many industrial plants closing down for periods of from two to three weeks. Machine tool manufacturers figure that when the holiday season is over and plants start up again working on accumulated orders an increase in equipment buying will follow. Recent sales include a forging hammer totaling about $5000 to a Massachusetts consumer, a heavy shear and other plate machinery to a tank manufacturer and a few scattered orders of lighter equipment. New construction work in New England includes a large number of technical schools for which tool equipment will be needed. Several of the New England railroads are urgently in need of tools and await only authority to buy. Textile mills after long continued dullness are accumulating orders which will soon warrant increased production. Used tools have recently moved more freely than new tools and prices in some cases have been surprisingly high.

Crane Awards and Inquiries of the Week

Orders Placed

Six cranes, including two 5-ton electric and four 10-ton hand power cranes for a Dayton, O., interest, to the Northern Engineering Works.

Five 25-ton locomotive cranes for the Chesapeake & Ohio railroad, to the Brown Hoisting Machinery Co.; this order was reported to have been placed with an unnamed builder some time ago.

Five cranes for the Carnegie Steel Co., Homestead works, Pittsburgh, including two soaking pit cranes, two 40-ton cranes, and one cinder crane, to the Morgan Engineering Co.

Two 10-ton cranes with 38-foot 6-inch span for the Carnegie Steel Co., Homestead works, Pittsburgh, to the Cleveland Crane & Engineering Co.

Single Installations

75-ton, 4-motor, 10-ton auxiliary, 55-foot span, for the Florida East Coast railroad, 120 Broadway, New York, reported informally placed with an eastern builder.

10-ton crane for a sand and gravel company in Cleveland, to McMyler-Interstate Co.

20-ton crane for an eastern railroad, to McMyler-Interstate Co.

10-ton gasoline operated locomotive crane for a Pittsburgh building supply company, to McMyler-Interstate Co.

5-ton handpower crane, 23-foot span, for the Erie railroad, 30 Church street, New York, to the New Jersey Foundry & Machine Co.

3-ton single I-beam handpower crane, 28-foot span, for installation in a plant in the Bronx, New York, to the New Jersey Foundry & Machine Co.

10-ton, 3-motor crane with 75-foot 11-inch span for the Marion Steam Shovel Co., Marion, O., to the Morgan Engineering Co.

1-ton handpower crane, 20-foot span, placed by a New York dealer for New Jersey destination, with the New Jersey Foundry & Machine Co.

6-ton, 2-motor electric hoist for the Carnegie Steel Co., Homestead works, Pittsburgh, to the Pawling & Harnischfeger Co.

Orders Pending

Two gantry cranes for the Pennsylvania railroad, Conway, Pa.; no new developments.

Several cranes for the Westinghouse Airbrake Co., Wilmerding, Pa.; early action anticipated.

One wall crane for the Westinghouse Electric & Mfg. Co., Sharon, Pa.; bids being taken. It is understood that one or more cranes will be purchased by this interest for its new plant at Mansfield, O.

Additional cranes for the Carnegie Steel Co., Homestead works, Pittsburgh, including open-hearth charging cranes, 10-ton ore bridge for Carrie furnace, etc; action to be taken this week.

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

BRIDGEPORT, CONN.—D. M. Read Co. will build a 6-story and basement mercantile building, 118 x 216 feet, to cost $1,000,000.

DERBY, CONN.—The C. & M. Mfg. Co. has been incorporated for $50,000 to make and deal in machines, tools, etc. by P. E. Wilkins and others, all of Derby.

HARTFORD, CONN.—Plans are being prepared by the O. B. Herlth Co., 272 Tolland street, manufacturer of machinery, for a $40,000 plant expansion. The proposed work includes a 50 x 100-foot factory addition and a 25 x 35-foot office extension.

WATERBURY, CONN.—The Waterbury Buckle Co. is receiving bids for a brick 5-story factory building 60 x 80 feet.

EVANSVILLE, IND.—Foundry buildings will be erected by the A. W. Hartig Plow Co., A. W. Hartig, president, which has sold its present plant to the Ingleheart Milling Co., which will build office building on site.

HOPEDALE, MASS.—The Draper Corp. is receiving bids for a boiler house, air compressor room, etc.

NEWBURYPORT, MASS.—The R. L. S. Signal Co., has been incorporated for $50,000 to manufacture automobile signals, by Donald I. Perry of Newbury, Mass., and Edwin Brown and Calvin Sawyer of Newburyport.

Where additional information is presented, reference is made to date of issue in which previous items appeared.

SPRINGFIELD, MASS.—Contract has been awarded for a boiler house for the city of Springfield.

SPRINGFIELD, MASS.—The Westinghouse Electric & Mfg. Co. is receiving bids for a brick and concrete heating plant here, 80 x 90 feet.

WATERTOWN, MASS.—The contract has been awarded for a 1-story and basement warehouse, 60 x 100 feet for the F. W. Webb Mfg. Co. here.

CLEVELAND—Thomas Cusack Co., manufacturer of outdoor advertising signs, has taken bids for a 2-story, 110x140-foot addition.

CLEVELAND—Industrial Machine Co., 2160 Superior avenue, has awarded contract to James L. Hunting, Discount building, for a machine shop 70 x 130 feet, at 1436 East Forty-seventh street, to cost $25,000. H. L. Vreeman is president.

CLEVELAND—W. S. Tyler Co., 3615 Superior avenue, has let general contract to Sam W. Emerson Co., 508 Union building, for 2-story, 110x110-foot brick and reinforced concrete plant. The company manufactures wire cloth, etc. Christ Zimmerman is secretary of the Tyler company.

COLUMBUS, O.—The Columbus Bolt Works has awarded contract for constructing 3-story plant addition. Lockwood, Greene & Co., Boston and Cleveland, are engineers. *Noted June 5.*

COLUMBUS, O.—Artcraft Metal Products Co., 269 West Spring street, plans purchase of two metal presses of 60 tons capacity. A. W. Zuhars is president of the company which manufactures gas ranges, etc.

COLUMBUS, O.—The V. W. Ventilation Co., 315 Wesley block, plans constructing 2-story plant on West Rich street. The company manufactures pullman ventilators and will buy metalworking equipment for the proposed plant. C. M. Shigley is manager.

DAYTON, O.—The Mazell Motor Car Co., Third and Bainbridge streets, plans plant addition.

DAYTON, O.—C. J. Schmidt, clerk and treasurer of the board of education has taken bids for supplying $40,000 worth of equipment for the new Roosevelt high school, including manual training tools.

ELYRIA, O.—The Stewart Machine Co. has been incorporated for $1000 by T. L. Moise, J. B. Johnson, C. W. Phillips and H. C. Chaney, and F. L. Hamel, to manufacture and deal in machinery, etc.

KENT, O.—The Miller Keyless Lock Co. has applied for use of city property on which to construct a plant addition.

SANDUSKY, O.—Simplex Auto Parts Corp., recently incorporated in Delaware for $100,000 is expected to purchase the idle plant here of Courier Motor Co. The Simplex company will manufacture a valve stem cap and other automobile parts. Charles R. Cox, Washington, is president.

SEBRING, O.—The E. H. Sebring China Co. has purchased the plant of the Sheboygan Aluminum Co., Sheboygan, Wis., and will dismantle and move equipment here. New plant is to be erected.

TOLEDO, O.—The Toledo Radiator Co., 1102 Monroe street, is in the market for one power hammer for light sheet metal work.

TOLEDO, O.—The Tractor Grip Wheel Co. has been incorporated for $500 to manufacture automotive and tractor products and accessories, by H. W. Morgan, C. W. Racine, Edwin Williams, Henry A. Middleton and Anita R. Plehn.

YOUNGSTOWN, O.—Hartford Piston Service Co. has been incorporated for $25,000 to do automobile repairing, etc., by J. W. Kiley, James M. Thomas, G. Thomas, Arthur Morgan and Ford P. Agey.

CHELSEA, OKLA.—Chelsea Gin Co. has increased its capital from $20,000 to $100,000 and plans considerable expansion of its cotton ginning plant by addition of new machinery.

CROMWELL, OKLA.—Cromwell Water Works Co. has been incorporated with capital of $10,000 to put in a water works system serving a town of 5000 population. J. I.

Business Changes Recently Announced

ANNOUNCEMENT is made of the removal of the offices of the Crowell & Little Construction Co. to 930 Hanna building, Cleveland.

* * *

Atlanta Sheet Metal Works, Atlanta, Ga., is moving into its new plant at 799 Marietta street, that city.

* * *

Keim Tank Construction Co., Tulsa, Okla., has opened offices at 402 Commercial building, that city. The company does a general business of building and rebuilding tanks.

* * *

Anton Boarder of Cleveland has bought the interest of J. P. Blais in the Lay-Val foundry at Orrville, O., and the company hereafter will be known as the Orrville Brass Foundry Co.

* * *

Larger quarters have been obtained at 2320 West Fifty-eighth street, Chicago, by the Lincoln Steel Co., which specializes in sheet steel produced by the American Rolling Mill Co. Harry G. Masten is president of the Lincoln Co., Harold M. Mattson, vice president, Mathias Mattson, treasurer and Arthur J. Saaby, secretary.

* * *

Removal of its Rochester branch to enlarged offices and increased warehouse facilities at 205-9 West Main street, Rochester, N. Y., is announced by the Armstrong Cork & Insulation Co. The change was made July 1.

* * *

The Hugh Co., Buffalo, N. Y., manufacturer of industrial sheet metal work, including ventilating, dust and blower systems, has enlarged its plant space by the addition of another unit, to handle its operations. E. C. Hugh is president.

* * *

To present the nature of its business more clearly the Hill Clutch Co., Cleveland, has changed its name to the Hill Clutch Machine & Foundry Co. No change is made in personnel or line of products, which include power transmission machinery, special machinery, belt tighteners, gear speed transformers and gray iron castings.

WABIK METAL

for

Vitreous Enameling

TABLE TOPS

Splasher Backs: Broiler Pans: Stove Door Panels: Signs: Refrigerators: and other flat work

Wabik Metal Sheets, like all other Mansfield Products, are rolled from our own "Bottom-poured Ingots." They are very low in sulphur.

Other Specialties:

Body Stock; Flat Fender and Hood Stock; Cowl Stock; Radiator Casing Stock; Crown Fender Stock.

METAL FURNITURE SHEETS

PICKELED and ANNEALED ENAMELING STOCK for Kitchen Utensils

MILK CAN STOCK

"Mansfield" Steel is the ultimate in Sheet Bars and in Sheets. It means satisfaction to all of the many users. Constant study of the needs of users, and continuous application of the results of such study, in the way of improved methods in our plants has established a reputation for unsurpassed reliability.

We invite your inquiries.

SHEET BARS and INGOTS

MANSFIELD SHEET & TIN PLATE COMPANY

MANSFIELD, OHIO

DISTRICT SALES REPRESENTATIVES

The L. D. Rockwell Co., 1106 National City Bldg., New York, N. Y.
Mansfield Sheet & Tin Plate Co., 1372 Wrigley Bldg., Chicago, Ill.
Mansfield Sheet & Tin Plate Co., 12-237 General Motors Bldg., Detroit, Mich
The L. D. Rockwell Co., 2002 Union Trust Bldg., Cleveland, O.
Wm. L. Hoffman, 1504 West Venango St., Philadelphia, Pa.
Mr. C. H. Beach, 617 Merchants Bank Bldg., Indianapolis, Ind.
Mr. A. P. Grenier, 640 Endicott Bldg., St. Paul, Minn.
Wm. P. Horn Co., 237 Rialto Bldg., San Francisco, Cal.
Wm. P. Horn Co., 301 Kerchoff Bldg., Los Angeles, Cal.
Wm. P. Horn Co., Dekum Building, Portland, Ore.
Wm. P. Horn Co., 1426 L. C. Smith Bldg., Seattle, Wash.

Warehouse Steel Prices

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.21c
Detroit	3.25c
Los Angeles	3.75c
New York	3.34c
Philadelphia	3.10c to 3.25c
Pittsburgh	3.00c
San Francisco	3.75c
Seattle	3.50c
St. Louis	3.25c
St. Paul	3.35c

IRON BARS

Boston	3.365c
Buffalo	3.35c
Chicago	3.10c
Cincinnati	3.40c
Detroit	3.25c
New York	3.34c
Philadelphia	3.10c to 3.25c
St. Louis	3.25c

REINFORCING BARS

Boston	2.75c
Buffalo	3.40c
Chicago	2.35c
Cincinnati	3.40c
Cleveland	2.66c to 3.21c
Detroit	3.25c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	3.00c
Philadelphia	2.30c to 2.40c
Pittsburgh	2.30c to 2.40c
San Francisco, C. L.	3.65c
San Francisco, L. C. L.	4.00c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.465c
Buffalo	3.50c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.31c
Detroit	3.35c
Los Angeles	3.85c
New York	3.44c
Philadelphia	3.10c to 3.25c
Pittsburgh	3.10c
San Francisco	3.60c
Seattle	3.60c
St. Louis	3.35c
St. Paul	3.45c

PLATES

Boston	3.465c
Buffalo	3.50c
Chicago	3.20c
Cincinnati	3.50c
Cleveland, ¼-inch and thicker	3.31c
Cleveland, 3/16-inch	3.55c
Detroit	3.35c
Detroit, 3/16-inch	3.45c
Los Angeles	4.00c
New York	3.44c
Philadelphia	3.10c to 3.25c
Philadelphia, 3/16-inch	3.32c to 3.47c
Pittsburgh	3.10c
San Francisco	3.75c
Seattle	3.50c
St. Louis	3.35c
St. Paul	3.45c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	4.34c to 4.515c
Buffalo	4.05c
Chicago	3.90c
Cincinnati	4.00c
Cleveland	3.55c to 3.76c
Detroit	4.05c
Los Angeles	5.00c
New York	4.14c
Philadelphia	3.90c
San Francisco	4.50c
Seattle	4.75c
St. Louis	4.00c
St. Paul	4.15c

NO. 28 BLACK SHEETS

Boston	4.85c to 5.00c
Buffalo	4.75c
Chicago	4.70c
Cincinnati	4.65c
Cleveland	4.45c to 4.55c
Detroit	4.75c
Los Angeles	6.20c
New York	4.75c
Philadelphia	4.95c
San Francisco	5.50c
Seattle	5.75c
St. Louis	5.00c
St. Paul	4.95c

NO. 28 GALVANIZED SHEETS

Boston	5.85c to 6.00c
Buffalo	5.85c
Chicago	5.60c
Cincinnati	5.85c
Cleveland	5.55c to 5.65c
Detroit	5.85c
Los Angeles	7.00c
New York	5.75c
Philadelphia	6.00c
San Francisco	6.35c
Seattle	6.75c
St. Louis	6.00c
St. Paul	5.75c to 6.00c

BANDS

Boston	4.115c
Buffalo	4.15c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.96c
Detroit	3.90c
Los Angeles	4.65c
New York	4.09c
Philadelphia	3.85c to 4.15c
Pittsburgh	3.70c
San Francisco	4.25c
Seattle	4.50c
St. Paul	4.00c

HOOPS

Boston	5.60c
Buffalo	4.50c
Chicago	4.25c
Cleveland, 1-inch and wider No. 20 and heavier	3.96c
Cleveland, narrower than 1-inch	4.46c
Detroit	4.40c
New York	4.59c
Philadelphia, ¼-inch and wider, 20 gage and heavier	4.10c to 4.27c
Philadelphia—narrower than ¼-inch	4.60c to 4.77c
Pittsburgh	3.70c
Seattle	5.50c
St. Paul	4.80c

COLD FINISHED STEEL

Boston (rounds)	4.25c
Boston (shapes)	4.75c
Buffalo (rounds)	4.30c
Buffalo (shapes)	4.80c
Chicago (shapes)	4.40c
Chicago (rounds)	3.90c
Cincinnati (rounds)	4.15c
Cincinnati (shapes)	4.65c
Cleveland (rounds)	4.10c
Cleveland (shapes)	4.60c
Detroit (rounds)	4.20c
Detroit (shapes)	4.70c
Los Angeles (rounds)	5.75c
New York (rounds)	4.25c
New York (shapes)	4.75c
Philadelphia (rounds)	4.15c to 4.35c
Philadelphia (shapes)	4.65c to 4.85c
Pittsburgh (rounds)	3.90c
Pittsburgh (sq. hex. and flats)	4.40c
San Francisco (rounds)	5.50c
Seattle (rounds)	5.00c
St. Paul (rounds)	4.15c

WELDED PIPE

Discounts from warehouse, New York City

Standard Steel Pipe
(Subject to Shading)

	Black	Galvanized
¼-⅜ inch butt	—31	+ 2
½-inch butt	—41	—24
¾-inch butt	—46	—32
1/3 inch butt	—48	—34
1½-inch lap	—44	—30
7-8-inch lap	—41	—11
9-10-inch lap	—35	— 8
11-12-inch lap	—34	— 6

Wrought Iron Pipe

	Black	Galvanized
¼-⅜-inch butt	+44	+78
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1-1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
3-6-inch lap	—11	+ 6
7-12-inch lap	— 3	+16

Cromwell, B. M. Gessel and G. E. Strauss are incorporators.

HENRYETTA, OKLA.—Old Cato Mining Co., capital $25,000, has been incorporated to do a coal mining business by C. E. Downs and Ben Meyers, Los Angeles, Cal., and G. L. Smith, Henryetta.

MUSKOGEE, OKLA.—Missouri-Kansas Fuel Co., recently chartered with capital of $100,000 by William McKinnon, Kanima, Okla., E. H. Mills, Springfield, Mo., and E. D. Holley, Stigler, Okla., to engage in the coal mining business, expects to develop several thousand acres of prospective coal lands.

TULSA, OKLA.—Slater Bros., 60 North Gillette street, soon will be in the market for compressor, drill press, etc., for plant under contemplation. *Noted June 5.*

TULSA, OKLA.—Jansen-Upp-Meyer, fixture manufacturers, plan construction of warehouse additions, at 14 North Cheyenne avenue. Orra E. Upp is a member of the company.

TULSA, OKLA.—General Gear & Machine Works has been incorporated by J. W. Hickok, L. B. McCawley and M. H. Hickok to do a general machine shop business. Capital is $10,000. A small plant has been leased in the downtown district.

TULSA, OKLA.—Oil Well Equipment Co., capitalized at $50,000, plans erection of plant for manufacture of a casing ripper and control head for oil wells. Incorporators are W. B. McMurtie, J. W. Moore and W. A. Chase, Tulsa.

ASTORIA, OREG.—Permission has been granted by city officials to the Standard Oil Co. for construction of a $1,000,000 fueling and oil distribution station here.

LINNTON, OREG.—General Petroleum Co. has purchased a site of 7½ acres on the Willamette river on which construction of a distributing plant to cost $500,000 is planned.

PORTLAND, OREG.—The Electric Steel Foundry Co., Twenty-fourth and York streets, will construct a 1-story, 50 x 160-foot foundry for which it will purchase electric furnaces, cranes, ladles, etc.

BRIDGEPORT, PA.—James Lees & Sons have had plans prepared for additions and alterations to its plant. The Ballinger Co., Philadelphia, is architect. Bids on the general contract were opened June 19, but the successful bidder has not as yet been announced.

PHILADELPHIA—Bids were closed July 7 for an addition to the pumping station at Queen Lane.

PHILADELPHIA—Bids will close July 2 on a dye house and engine room for the Kaufman Plush Co., Inc., Mitchel & Rector street. The Ballinger Co. is architect.

PHILADELPHIA—Contract has been awarded for a $50,000 plant addition, for the Philadelphia Insulated Wire Co., 200 North Broad street.

PHILADELPHIA—Fire recently caused $50,000 damage to the plant of Lindsey & Hyde Co., 2222-32 East York street, manufacturer of tools.

PHILADELPHIA—A $60,000 storage and distributing plant will be erected by the Gulf Refining Co., Widener building, at Penrose street and the Schuylkill river.

PHILADELPHIA—Alterations costing $10,000, will be made at the warehouse of the Wall Paper Mills Co., 905 Arch street. The A. Raymond Raff Co., 1635 Thompson street, has been awarded the general contract.

PHILADELPHIA—General contract for the erection of a $20,000 plant for John M. Kennedy, Jr., at Salmon and Pickwick streets has been awarded to Joseph K. Long, 1619 North Robinson street.

PHILADELPHIA—The William Steele & Sons Co., 219 North broad street, has been awarded the general contract for a $5000

Bourne-Fuller Service

includes immediate shipment of all Iron and Steel materials from Cleveland and Cincinnati

Warehouses

If you are not receiving our Stock-list we shall be glad to send it to you regularly upon request.

Upson Works

Open Hearth Steel Bars for special uses. Also a complete line of Bolts and Nuts. Prompt Shipments.

THE
BOURNE-FULLER CO.
Iron, Steel
Pig Iron
Coke
CLEVELAND

New York Chicago
San Francisco
Cincinnati Detroit

boiler house addition for Boyer & Crawford.

PHILADELPHIA—A $5000 industrial building will be erected by the Philadelphia Gas Works, northeast corner of Schuylkill and Pessyunk. J. H. Cherry Co., Drexler building, has been awarded the contract.

PHILADELPHIA—Samuel Stern, 1006 Vine street, will start work at once on the erection of a $11,000 sheet metal shop at 1015-17 Winter street. The proposed structure will be two stories high, 32x80 feet.

PHILADELPHIA—Bids have recently been closed on a die house and engine room addition for the Kaufman Plush Co., Mitchell & Pennsdale streets. The Ballinger Co. is architect in charge.

PHILADELPHIA—The Philadelphia Electric Co. is reported as contemplating erection of a hydro-power plant on the Susquehanna river, near Conowingo, Md., the ultimate cost of which may reach $50,000,000. Plans, it is said, are now being prepared.

ST. DAVIDS, PA.—Contract will be awarded shortly for the construction of a shop here by the Wayne Iron Works, Commercial Trust building, Philadelphia. According to plans by P. M. Sax, Penfield building, Philadelphia, the proposed structure will be 1-story high, 49x74 feet.

YORK, PA.—The Bear Combustion Co. has been organized with $50,000 capital, to manufacture combustion machinery. Assembly work for the present will be done by the York Electric & Machinery Co.

CENTRAL FALLS, R. I.—The Sorel Hardware & Electric Co. has been incorporated for $25,000 by Edouard Sorel, Laure Sorel and Everiste Leclerc.

HOUSTON, TEX.—Gulf Machinery Mfg. Co., Inc., has been incorporated with $5000 capital, by G. W. Dicks, E. A. Embrey and J. M. Hacker.

ANTIGO, WIS.—The Antigo Electric Sign Mfg. Co. is equipping a 2-story factory building at Fourth and Dorr streets with stamping, pressing, welding, riveting and other motor-driven machinery for manufacturing electric advertising signs. Sales offices will be maintained in Chicago. N. E. Fowler is general manager.

CHIPPEWA FALLS, WIS.—An additional high pressure boiler, 80-foot stack and 150,000 gallon water storage tank will be installed by Chippewa county at its asylum and poor farm here. J. R. Harris, county clerk, is now ready for bids.

FOND DU LAC, WIS.—A loss of $35,000 to $40,000 was caused by fire in the plant of the B. F. & H. L. Sweet Co., manufacturer of farm wagons, auto trailers and bodies. The burned area was used largely for warehouse purposes. Rebuilding will be done immediately.

GREEN BAY, WIS.—A $45,000 factory addition, 90 x 120 feet, 1-story, will be built by the Automatic File & Index Co. at Tenth street and South Broadway.

KENOSHA, WIS.—A charter has been granted to the Fuller-Lorenz Co., capital stock $50,000, to manufacture tools, mechanical appliances, machinery, die castings, etc. The incorporators are James Follen and Fred Lorenz, who have been associated in this business for some time.

MENASHA, WIS.—The Ideal Electric & Mfg. Co., Mansfield, O., has received the contract for motors and pumps for a $35,000 addition to the city water and light plant here.

MERRILL, WIS.—The Merrill Sheet Metal Works, 509 West Main street, has been purchased by John Reynolds, who has been superintendent for George Pavlik, the former owner, for ten years.

MILWAUKEE—The Rundle Mfg. Co., Layton Park, manufacturing plumbers' goods and materials, will build a 3-story brick and concrete addition, 30 x 50 feet.

MILWAUKEE, WIS.—A new garage, repair shop and general service building costing $100,000 will be built at Walker and Barclay streets here by the Standard Oil Co., with Milwaukee headquarters at 68 Wisconsin street. The Universal Construction Co. is general contractor.

MILWAUKEE—A private garage, with repair shop, and a machine shop for factory service will be built by the Quality Biscuit Co., 696 South Pierce street. It will be 70 x 130 feet, 1-story, with part basement, and cost about $50,000 completely equipped.

MILWAUKEE—Architects Van Ryn & DeGelleke, Caswell block, closed bids July 3 for a 2-story addition, 69 x 120 feet, to the Lincoln exchange of the Wisconsin Telephone Co. at Fourth and Wright streets. It will cost about $75,000.

MILWAUKEE—Work has been started by the Edwards Motor Car Co., automobile distributor, on a one-story brick and concrete garage repair shop extension, 80 x 106 feet. The Coddington Engineering Co., 290 Third street, has the general contract.

MILWAUKEE—The R. E. Schlei Co., 764 Thirty-second street, will build a $35,000 public garage and repair shop, 60 x 120 feet, at 3025 North avenue.

MILWAUKEE—The [illegible] Engineering Co., 185 Mason street, is the successful bidder for erecting the east center wing addition to the boys' technical high school at Hanover, Greenbush and College streets. It will cost about $200,000 and be ready by July 1, 1925.

NEW LONDON, WIS.—F. Schoenrock & Co. are about to start work on a $35,000 garage and repair shop, 2-story, 60 x 115 feet, for the E. H. Smith Motor Co.

STOUGHTON, WIS.—The Stoughton Wagon Co., now building motor trucks, motor busses and similar vehicles, is making extensive changes in its factories, having decided to build most of its own gas engines. The general truck capacity at the same time will be increased from 50 to 75 per cent.

Business in Canada

BRIDGEBURG, ONT.—The Williams Gold Refining Co., has purchased the building formerly occupied by the Hazen-Morris Co., and is enlarging it and installing equipment.

FORT WILLIAM, ONT.—Matthews Electric Co., Ltd., has been incorporated to carry on the business of electrician, mechanical engineer and manufacturer of engines, dynamos, generators, batteries, etc., with $40,000 capital and provisional directors, Arthur H. Dowler and Edith Brown.

HAMILTON, ONT.—Hamilton Radio Electric, Ltd., has been incorporated with $40,000 capital stock, provisional directors, Charles Almas, Stanley L. Almas, Oswald D. Peat and others.

HAMILTON, ONT.—James Moncur Electric Co., Ltd., has been incorporated to deal in electric fixtures, supplies and apparatus with $100,000 capital stock, by James W. Moncur, Mary H. Moncur, Thomas H. Crercor and others.

KINGSTON, ONT.—F. A. Breeze will purchase complete equipment for machine shop, including lathes, tools, etc.

NIAGARA FALLS, ONT.—Smith Bros. Construction Co., Ltd., has been incorporated to carry on business as general contractor builder, roofer and manufacturer of builders' materials, with $50,000 capital stock, provisional directors, Arnold Smith, Ernest Smith and Winnifred I. Smith.

OSHAWA, ONT.—The National Furnace & Foundry Co., Beaverton, Ont., contemplates removing its plant to Oshawa and is looking for a site here.

OTTAWA, ONT.—National Mfg. Co., Ltd., has been incorporated to manufacture milking machines, cream separators, farm implements and machinery, with $1,000,000 capital stock; by John J. Creelman, John S. B. Macpherson, and Victor H. Fowler.

PETERBORO, ONT.—The DeLaval Co., Park street, manufacturers of cream separators, etc., will build addition to plant here.

SARNIA, ONT.—The Imperial Oil Co. is rebuilding a number of the stills in its refinery in accordance with modern improvements involving a large expenditure.

SARNIA, ONT.—The Doherty Stove Co., plans the erection of a factory here to cost $150,000 for the manufacture of furnaces, hot water heating equipment, electric stoves, etc.

STANFORD TOWNSHIP, ONT.—Contracts for the construction of a sewerage system have been awarded to a total amount of $296,563 including the following; Nelson River Construction Co. of Winnipeg, construction work $131,352, Clay Products Co., Toronto, vitrified pipe $29,422, Dominion Wheel & Foundry Co., Toronto, castings $6484, Dominion Lock Joint Co., Hamilton, pipe, $129,304.

TORONTO, ONT.—The plant of the Wilson Scale & Machinery Corp., was damaged by fire with a loss of $35,000.

TORONTO, ONT.—Potts' Pattern & Machine Co., Ltd., has been incorporated with Armand T. White, John A. Caltanach and John Mitchell.

TORONTO, ONT.—Dominion Kewanee Boiler Co., Ltd., has been incorporated to manufacture goods of all kinds, with $100,000 capital stock, by James Aitchison, Collamer C. Calvin, George H. Sedgewick and others.

TORONTO, ONT.—W. W. Hiltz, chairman of the board of control, will receive bids until Aug. 19 for the supply and installation of a 400-horsepower steam turbine, etc. Plans and specifications may be obtained from works department, room 12, City Hall.

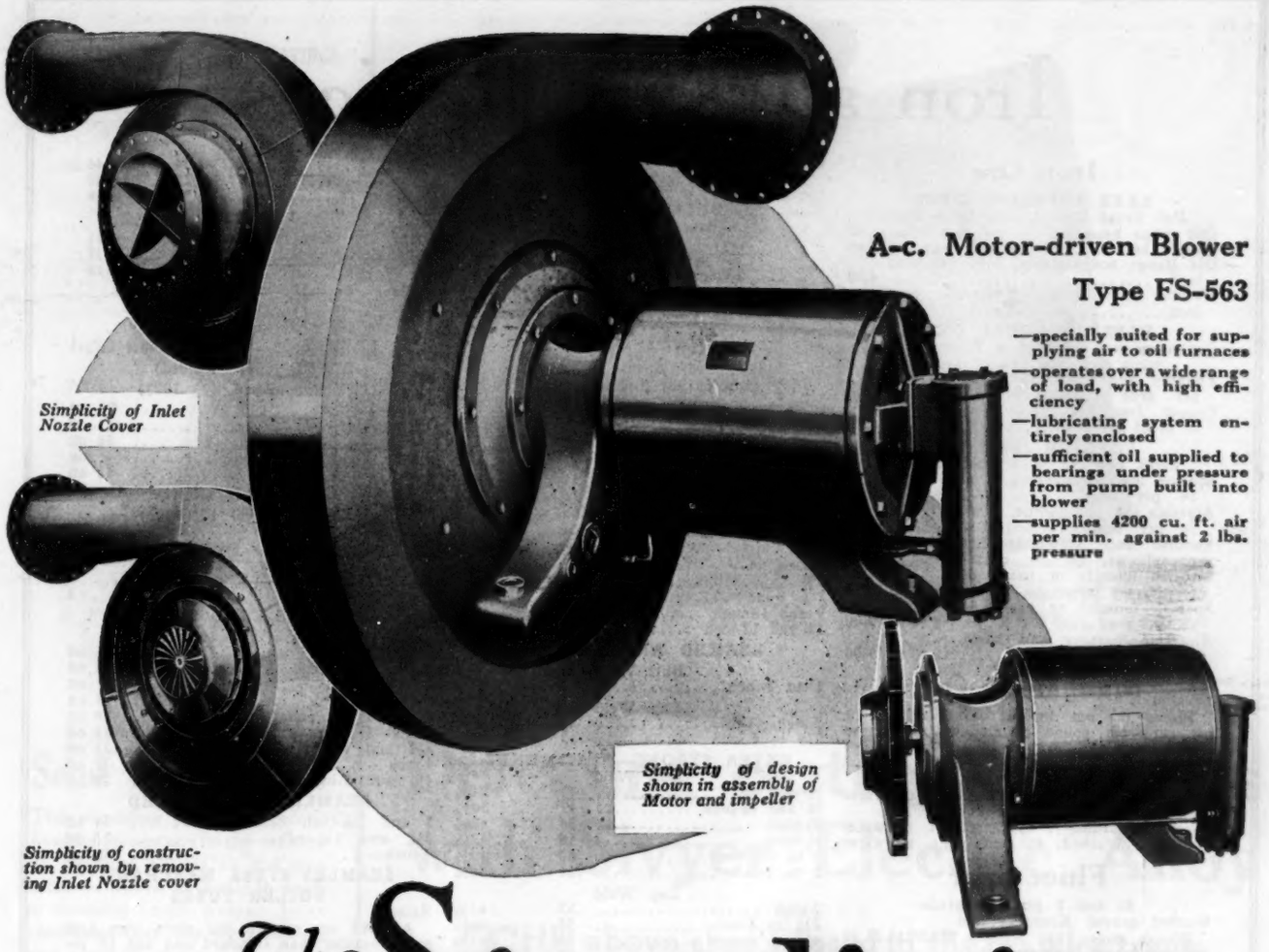
TORONTO, ONT.—Dowse Woodworking Machine Co., Ltd., has been incorporated to manufacture woodworking machines, engines, electrical machinery, equipment, etc., with $40,000 capital stock, provisional directors, Hugh Johnston McLaughlin, William W. McLaughlin and William T. Sinclair.

COOKSHIRE, QUE.—The R. Wallace Co. of Wallingford, Conn., has established a branch plant and begun the manufacture of plated cutlery.

DRUMMONDVILLE, QUE.—L. Roessel & Co., silk manufacturer, has begun construction of a large plant the cost of which when complete is estimated at $2,500,000.

MONTREAL, QUE.—The Industrial Garage & Machine Shop, 914 Notre Dame street, west, is in the market for equipment for garage and machine shop. Purchasing agent is A. Larocque.

MONTREAL, QUE.—Builders Iron Works, Ltd., has been incorporated to carry on the business of iron founder, mechanical engineer and manufacturer of machinery with $15,000 capital stock, by Francis C. E. Burnett, Perry P. Crampton, John Harper and others.



Simplicity of Inlet Nozzle Cover

Simplicity of design shown in assembly of Motor and impeller

Simplicity of construction shown by removing Inlet Nozzle cover

A-c. Motor-driven Blower

Type FS-563

—specially suited for supplying air to oil furnaces

—operates over a wide range of load, with high efficiency

—lubricating system entirely enclosed

—sufficient oil supplied to bearings under pressure from pump built into blower

—supplies 4200 cu. ft. air per min. against 2 lbs. pressure

The Simplicity of this Blower insures better service

In this new blower *fewer parts*, built right, give more satisfactory service, longer life and less maintenance—than can be obtained with blowers of complicated construction.

The bearings and rotating elements are readily accessible—the casing may be easily revolved and the discharge opening located to accommodate the simplest piping arrangement—the supports are in one plane

Easy to install and maintain.

You can readily obtain information on complete blower service for your requirements at the nearest G-E sales office.

General Electric Company
Schenectady, N. Y.
Sales Offices in all Large Cities

43B-800

GENERAL ELECTRIC

Iron and Steel Prices

Iron Ore

LAKE SUPERIOR ORES
Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron. $5.65
Mesabi bessemer, 55 per cent iron. 5.40
Old Range nonbessemer, 51½ per cent iron 4.90
Mesabi nonbessemer, 51½ per cent iron 4.75

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent 9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent 12.50 to 14.50

FOREIGN IRON ORE
Cents per unt, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent 9.00 to 9.50
Algerian low phosphorus, 52 to 54 per cent 10.00 to 10.50
Swedish and Norwegian low phosphorus, 68 per cent 11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent 9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent 8.00 to 9.00
Alegerian foundry and basic, 50 to 54 per cent 8.00 to 9.00

Manganese Ore

Prices do not include duty at rate 1 per cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent. nominal
Indian, minimum 47 per cent. nominal 41 to 42 cents c.i.f. tidewater
Caucasian, 53 to 55 per cent. Ordinary, 43 cents c.i.f. tidewater. Washed, 46 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton $19.00 to 23.50
Washed gravel, imported duty paid eastern tidewater, per net ton 19.00

Rivets

Structural rivets, C. L. Pitts. 2.50c to 2.65c
Structural rivets L. C. L. Pittsburgh 2.65c to 2.75c
Rivets, 7/16-in. and smaller. 70 and 10 off to 70, 10 and 10 off

Nuts and Bolts

(Up to 1¾ and 1⅜ inches inclusive)

Hot pressed square or hexagon blank $5.00 to 4.75 off list
Hot pressed square or hexagon tapped $5.00 to 4.75 off list
Cold punched square or hexagon blank $4.50 to 4.25 off list
Cold punched square or hexagon $4.50 to 4.25 off list
Cold punched semifinished hexagon nuts ⅝-inch and larger 80 and 10 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller 80, 10 and 5 off
Price f.o.b. Pittsburgh, packages of 50.

CARRIAGE BOLTS
(¾ x 6 inches, smaller and shorter)

Rolled thread 60 and 20 off
Cut thread 60 and 10 off
Larger and longer 60 and 10 off

MACHINE BOLTS
(⅜ x 4 inches, hot pressed nuts)

Rolled thread 60, 20 and 10 off
Cut thread 60 and 20 off
Larger and longer 60 and 20 off
(All sizes cold punched nuts)
Cut thread 50,10 and 10 off
Lag screws 65 and 20 off
Plow bolts Nos. 1, 2 and 3 heads 50 and 10 off
4 to 10 heads 50-10 + 20 off
Flat and round head stove bolts 80,10 and 5 off
Other stove bolts 80, 10 and 5 off
Tap bolts 30 off
Bolt ends with hot pressed nuts 60 and 20 off
Bolt ends with cold punched nuts 50, 10 and 10 off
Blank bolts 60 and 20 off
Rough stud bolts with nuts (250 pieces or more of a size) 45, 10 and 5 off

Washers

Wrought $5.50 to $6.00 off
Lock washers 80 per cent off

Steel Pipe

(Effective April 19, 1923)
Pittsburgh basing discounts, jobbers' carloads.

	Black	Galvanized
Butt Weld		
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½
REAMED AND DRIFTED		
Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½
EXTRA STRONG—PLAIN ENDS		
Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	43	31½
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

(Effective Jan. 23, 1923)
Pittsburgh basing discounts, jobbers' carloads

THREADS AND COUPLINGS		
Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
7 to 8-inch	28	13
9 to 12-inch	26	11
PLUGGED AND REAMED		
Two points less than above		
EXTRA STRONG, PLAIN ENLS		
Butt Weld		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

L. C. L. discounts. C. L. 4 points larger

STEEL (Lap Welded)
(Effective April 19, 1923)

2 and 2¼-inch 23 off
2½ and 2¾-inch 33 off
3-inch 36 off
3¼ to 3¾-inch 38½ off
4 to 13-inch 42 off

CHARCOAL IRON
(Effective April 12, 1923)

1½-inch +22
1¾-inch +12
2 and 2¼-inch + 2
2½ to 3-inch 3
3¼ to 4½-inch 5

SEAMLESS COLD DRAWN
(Effective April 19, 1923)

1-inch 51 off
1¼ and 1½-inch 43 off
1¾-inch 27 off
2 and 2¼-inch 18 off
2½ and 2¾-inch 28 off
3 and 3¼-inch 32 off
3½ and 3¾-inch 33 off
4-inch 37 off
4½ and 5-inch 29 off

SEAMLES HOT ROLLED

3 and 3¼-inch 34 off
3½ and 3¾-inch 35 off
4-inch 39 off

SEAMLES STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts

Carbon, 0.10 to 0.20 per cent. 83 off
Carbon, 0.30 to 0.40 per cent. 81 off
Carbon 0.40 to 0.50 per cent. net price

Plus differentials and extras for cutting.

SEAMLES STEEL LOCOMOTIVE AND SUPERHEATER TUBES
(Effective April 19, 1923)

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	15c
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5⅜-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.

*Published discounts are subject to considerable shading, in some cases as much as three extra 5 per cents.

Hot Rolled Alloy Steels

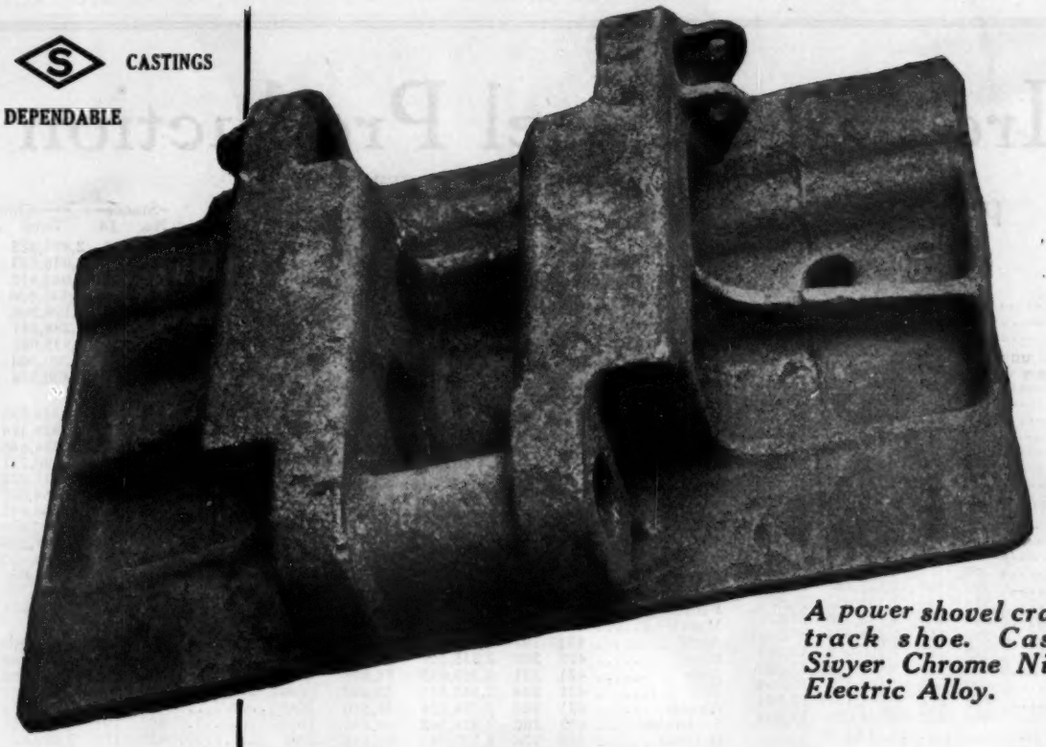
Prices per pound, Pittsburgh

S. A. E. Series—

2300 (3½ per cent nickel) 5.00c
3100 (nickel chromium) 4.00c
6100 (chrome vanadium) 4.75c
6100 (chrome vanadium spring) 4.50c
9250 (Silico manganese spring) 4.00c to 4.25c

SIVYER (S) CASTINGS

DEPENDABLE



A power shovel crawler track shoe. Cast in Sivyer Chrome Nickel Electric Alloy.

Send Blue Prints

The annealing process is exceptionally important in the making of castings similar to the one pictured above. It is only through a thorough and proper heat treatment that the alloy casting can attain the desired fine grain, interior integrity, and tensile strength.

In the Sivyer foundry the various castings are grouped according to the heat treatment required for each, and each lot is then given separate treatment. As a result, Sivyer alloy castings are always assured of a uniform and dependable toughness that defies hard knocks and hard service.

The physical properties of the Annealed Chrome Nickel track shoe when it leaves the Sivyer foundry, are as follows.

Tensile Strength -	100,000 lbs.
Yield Point - -	65,000 lbs.
Elongation in 2" - - -	19%
Reduction in Area - -	30%

Sivyer Alloy Steels can be tempered by heating and quenching.

Defeating casting breakage with Sivyer Electric Alloy

THE above shoe is used in the crawler track of a ¾-yard power shovel. The castings previously used for this part proved unsatisfactory because they were either too soft or too brittle to withstand, without bending or breaking, the occasional blows of the heavy shovel dipper. The manufacturer turned to Sivyer for a stiffer, less brittle casting. As a result, Sivyer high carbon Chrome Nickel Electric Steel Castings have been adopted as standard. The manufacturer reports that not a single Sivyer shoe has broken in service. In the Sivyer foundry high carbon alloys receive the accurate furnace control and the specialized annealing that they require. The resulting castings are uniformly tough, non-brittle and withstand hard knocks without bending or breaking.

SIVYER STEEL

SIVYER STEEL CASTINGS COMPANY, MILWAUKEE

Iron and Steel Production

Compiled By IRON TRADE REVIEW

Pig Iron

	-Stacks- No.	In	——Output—— Total	Av. daily
1907				
January	376	311	2,174,801	70,155
February	374	308	2,047,036	73,109
March	377	304	2,186,709	70,539
April	378	327	2,226,708	74,223
May	391	329	2,291,030	73,904
June	392	341	2,237,420	74,580
July	396	335	2,253,243	72,685
August	397	329	2,243,656	72,376
September	399	329	2,174,148	72,471
October	401	314	2,359,690	76,119
November	398	226	1,820,558	60,685
December	398	154	1,234,733	39,830
Total			25,249,732	
1908				
January	398	139	1,081,813	34,897
February	401	150	1,086,809	37,476
March	398	154	1,229,856	39,672
April	398	146	1,155,122	38,504
May	396	145	1,168,002	37,677
June	395	154	1,106,300	36,876
July	397	166	1,228,604	39,632
August	399	181	1,366,019	44,065
September	399	189	1,416,252	47,208
October	400	200	1,573,824	50,764
November	402	212	1,582,314	52,744
December	403	221	1,723,664	55,602
Total			15,718,579	
1909				
January	406	234	1,787,473	57,683
February	407	233	1,682,470	60,088
March	406	229	1,822,024	58,793
April	406	224	1,731,406	57,687
May	407	236	1,866,757	60,218
June	408	240	1,929,929	64,334
July	409	258	2,088,620	67,375
August	412	278	2,232,642	72,021
September	413	297	2,378,655	79,201
October	413	309	2,589,681	83,538
November	414	311	2,532,740	84,425
December	416	314	2,682,702	86,539
Total			25,325,099	
1910				
January	416	311	2,599,995	83,871
February	417	311	2,429,525	86,768
March	417	310	2,588,736	83,508
April	418	291	2,477,700	82,590
May	419	279	2,374,802	76,607
June	420	271	2,288,279	76,276
July	420	254	2,158,124	69,617
August	422	244	2,103,791	67,864
September	420	234	2,048,461	68,282
October	421	230	2,086,205	67,297
November	421	218	1,910,385	63,679
December	421	193	1,779,899	57,416
Total			26,845,902	
1911				
January	421	210	1,766,658	56,985
February	421	226	1,781,285	63,617
March	421	236	2,165,764	69,863
April	421	220	2,044,904	68,163
May	421	206	1,871,888	60,367
June	421	202	1,773,282	59,109
July	423	196	1,776,108	57,294
August	423	206	1,921,832	61,995
September	423	216	1,973,918	65,797
October	421	214	2,092,061	67,486
November	421	214	1,999,100	66,637
December	422	215	2,032,301	65,558
Total			23,198,601	
1912				
January	421	227	2,052,806	66,220
February	422	235	2,098,796	72,372
March	420	237	2,411,529	77,791
April	421	239	2,377,621	79,254
May	423	243	2,503,341	80,753
June	424	242	2,433,737	81,125
July	422	245	2,402,567	77,502
August	423	255	2,500,163	80,650
September	419	262	2,444,454	81,482
October	422	280	2,683,645	86,569
November	423	289	2,639,562	87,985
December	423	291	2,777,292	89,590
Total			29,325,513	
1913				
January	423	297	2,787,800	89,929
February	423	306	2,578,670	92,095
March	423	278	2,762,823	89,123
April	421	297	2,754,353	91,812
May	421	285	2,816,825	90,865
June	422	283	2,616,883	87,229
July	422	264	2,558,275	82,525
August	424	260	2,537,018	81,839
September	425	258	2,494,098	83,137
October	425	244	2,539,924	81,933
November	424	225	2,229,960	74,322
December	424	191	1,976,138	63,746
Total			30,652,767	
1914				
January	423	199	1,879,336	60,624
February	423	219	1,888,607	67,450
March	423	232	2,341,551	75,534
April	422	212	2,261,501	75,383
May	422	198	2,097,019	67,646
June	422	193	1,904,566	63,486
July	422	187	1,955,324	63,075
August	422	187	1,996,483	64,403
September	422	180	1,882,718	62,757
October	422	162	1,767,227	57,007
November	421	150	1,501,269	50,042
December	421	154	1,495,325	48,236
Total			22,970,926	
1915				
January	421	165	1,591,024	51,323
February	421	179	1,666,592	59,521
March	421	190	2,046,280	66,009
April	421	197	2,114,518	70,484
May	421	207	2,255,157	72,747
June	421	221	2,369,932	78,998
July	421	234	2,563,311	82,687
August	421	246	2,774,825	89,510
September	420	266	2,834,342	94,478
October	420	276	3,120,340	100,656
November	421	285	3,035,235	101,174
December	421	295	3,201,605	103,278
Total			29,573,161	
1916				
January	421	304	3,171,878	102,319
February	421	312	3,078,548	106,157
March	422	315	3,327,630	107,343
April	422	320	3,225,496	107,517
May	423	321	3,364,584	108,535
June	423	325	3,213,818	107,127
July	419	316	3,221,127	103,907
August	419	317	3,197,838	103,156
September	419	326	3,208,041	106,935
October	419	328	3,508,180	113,167
November	420	322	3,317,805	110,593
December	422	309	3,184,178	102,715
Total			39,019,123	
1917				
January	422	310	3,159,839	101,930
February	422	317	2,649,935	94,641
March	423	331	3,255,813	105,026
April	425	333	3,328,061	110,936
May	425	340	3,413,677	110,119
June	427	347	3,260,234	108,675
July	429	351	3,337,442	107,659
August	431	357	3,238,970	104,483
September	431	342	3,140,742	104,691
October	433	354	3,296,286	106,332
November	434	344	3,198,597	106,620
December	435	321	2,885,380	93,077
Total			38,164,976	
1918				
January	435	294	2,403,227	77,523
February	435	319	2,318,242	82,723
March	438	338	3,209,996	103,548
April	437	351	3,273,355	109,112
May	437	360	3,451,884	111,351
June	437	353	3,316,148	110,538
July	437	364	3,408,584	109,954
August	439	371	3,378,479	108,983
September	438	364	3,413,223	113,774
October	437	364	3,482,392	112,335
November	437	360	3,347,844	111,595
December	435	351	3,434,114	110,778
Total			38,437,488	
1919				
January	435	330	3,306,279	106,654
February	435	311	2,943,347	105,120
March	435	279	3,088,023	99,614
April	435	216	2,474,374	82,479
May	433	197	2,107,729	67,991
June	433	199	2,114,028	70,467
July	434	240	2,424,212	78,200
August	432	266	2,742,081	88,453
September	433	163	2,480,790	82,692
October	432	216	1,864,424	60,142
November	432	252	2,407,369	80,244
December	432	262	2,626,074	84,711
Total			30,578,730	
1920				
January	432	285	3,012,373	97,173
February	432	305	2,984,257	102,904
March	433	315	3,375,768	108,895
April	433	278	2,752,670	91,754
May	433	297	2,991,825	96,510
June	433	302	3,046,623	101,553
July	434	291	3,043,918	98,190
August	434	306	3,145,536	101,468
September	434	317	3,124,308	104,143
October	435	290	3,288,341	106,075
November	435	255	2,935,081	97,836
December	435	202	2,700,268	87,105
Total			36,400,968	
1921				
January	436	184	2,414,753	77,895
February	436	155	1,929,394	68,906
March	436	103	1,594,866	51,447
April	436	96	1,190,751	39,691
May	436	90	1,215,272	39,202
June	436	74	1,064,007	35,466
July	435	69	864,642	27,892
August	436	69	954,901	30,802
September	435	84	985,795	32,859
October	435	95	1,234,450	39,821
November	429	120	1,414,958	47,165
December	429	123	1,642,775	52,992
Total			16,506,564	
1922				
January	430	127	1,645,804	53,090
February	429	139	1,630,180	58,220
March	429	155	2,035,908	65,674
April	429	161	2,070,161	69,005
May	427	175	2,309,348	74,495
June	427	191	2,362,455	78,748
July	427	170	2,403,030	77,517
August	427	143	1,810,665	58,408
September	427	189	2,024,008	67,466
October	428	218	2,629,655	84,827
November	428	241	2,846,110	94,870
December	428	253	3,083,520	99,468
Total			26,850,844	
1923				
January	428	261	3,228,226	104,136
February	424	278	2,993,918	106,925
March	424	295	3,523,595	113,664
April	423	311	3,547,012	118,233
May	423	322	3,868,486	124,790
June	424	322	3,667,868	122,262
July	418	299	3,684,677	118,860
August	418	270	3,448,886	111,254
September	418	254	3,117,526	103,917
October	418	245	3,142,642	101,375
November	418	229	2,891,191	96,373
December	418	231	2,912,527	93,952
Total			40,025,850	
1924				
January	414	248	3,015,480	97,273
February	414	263	3,072,165	105,937
March	410	269	3,465,389	111,787
April	410	234	3,226,107	107,537
May	411	187	2,619,986	84,515
June	411	160	2,021,377	67,379

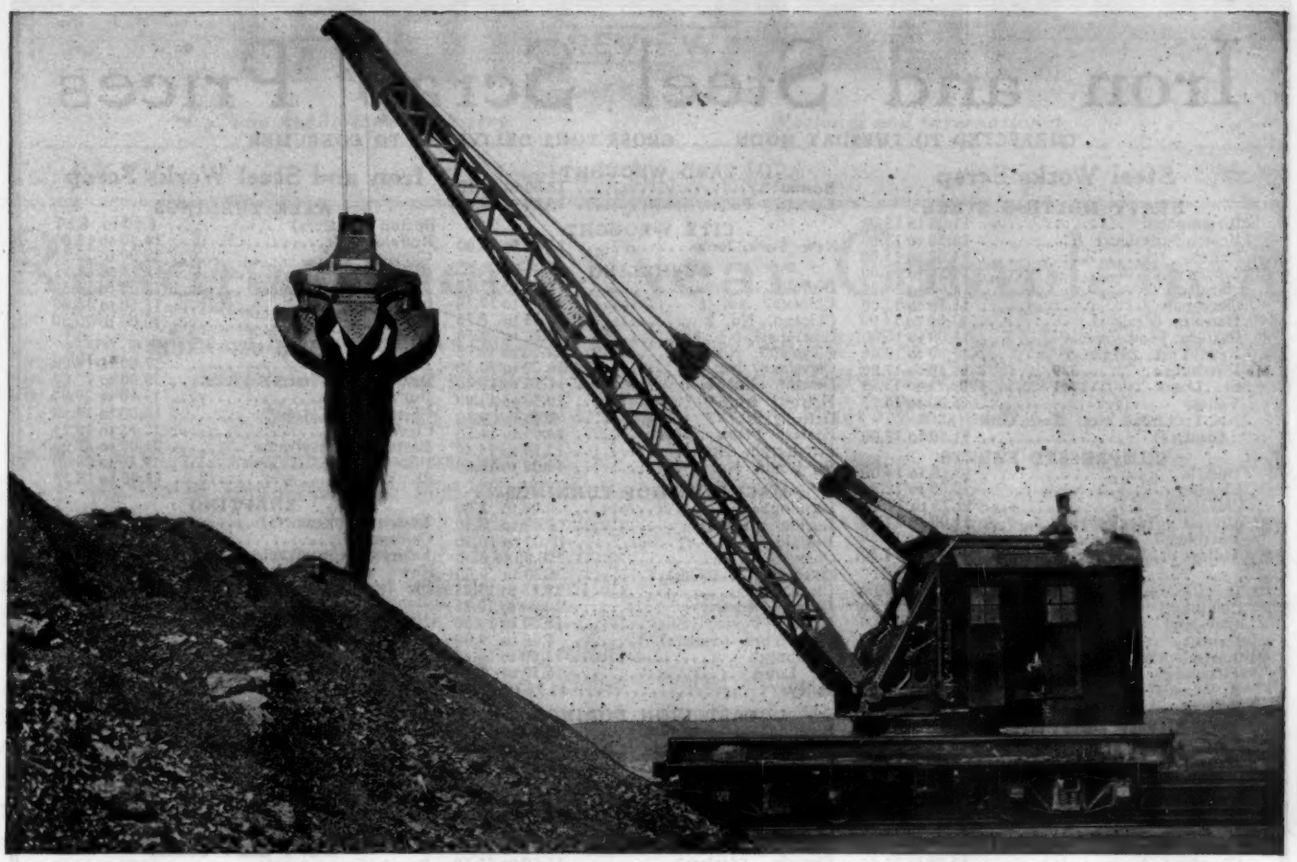
Ingots and Castings

By American Iron and Steel Institute

	Ingots	Castings	Total
1918	43,051,022	1,411,410	44,462,432
1919	33,694,795	976,437	34,671,232
1920	40,881,392	1,251,542	42,132,934
1921	19,184,084	559,713	19,743,797
1922	34,568,418	1,034,508	35,602,926
1923	43,485,665	1,458,031	44,943,696

Monthly Ingot Output

1923	Gross Tons 94.84 per cent of capacity	Calculated total
January	3,644,629	3,841,095
February	3,294,264	3,471,843
March	3,858,675	4,066,680
April	3,760,997	3,963,736
May	4,000,695	4,216,355
June	3,574,567	3,767,256
July	3,350,829	3,531,458
August	3,506,755	3,695,788
September	3,185,082	3,356,776
October	3,394,128	3,577,091
November	2,974,005	3,134,321
December	2,716,814	2,863,266
Total	41,261,440	43,485,665
1924	94.84 per cent	
January	3,446,143	3,633,639
February	3,612,631	3,809,185
March	3,971,844	4,187,942
April	3,161,525	3,333,535
May	2,492,643	2,628,261



One Source of Additional Profits

In this era of narrow margins between production costs and selling prices, every plant is studying closely methods of reducing production costs by the application of machinery. No type of equipment will better repay a thorough study of this kind than material handling machinery and especially the locomotive crane.

This is a machine which, because of its mobility, can perform a greater variety of services at a lower cost than practically any other type of handling equipment.

Brownhoist locomotive cranes have served the iron and steel industry for years. On every operation where locomotive cranes are used, Brownhoists will be found working faithfully and efficiently day in and day out. Leaders in the industry have specified Brownhoists repeatedly. Some plants operate as many as a dozen or more.

All of these users have chosen Brownhoists entirely for their effectiveness in handling materials at greater speed and lower cost. And they know too that Brownhoists can be counted on for the same performance in the tenth as in the first year of service.

Our experienced engineers will gladly make a careful analysis of your handling needs and submit suggestions. May we serve you?

The Brown Hoisting Machinery Company, *Cleveland, Ohio*

Brownhoist Products: Heavy Dock Machinery, Locomotive Cranes, Bins, Conveyors, Bridge Cranes, Buckets, Etc.

Branch Offices: New York, Chicago, Pittsburgh, San Francisco, New Orleans, London, England.

BROWNHOIST

MATERIAL HANDLING EQUIPMENT

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	11.00 to 12.00
Boston (dealers)	10.50 to 11.00
Buffalo	14.00 to 15.00
Chicago	14.50 to 15.00
Cleveland	14.00 to 14.25
Cincinnati	11.50 to 12.00
Detroit (dealers)	13.50 to 14.00
Eastern Pennsylvania	15.00 to 16.00
New York (dealers)	11.50 to 12.00
Pittsburgh	16.50 to 17.00
St. Louis	12.75 to 13.25
Valleys	16.00 to 16.75
No. 1 railroad steel New York (dealers)	11.50 to 12.00

COMPRESSED SHEETS

Buffalo	13.50 to 14.00
Chicago	12.00 to 12.50
Cleveland	11.75 to 12.00
Detroit (dealers)	11.00 to 11.50
Pittsburgh	15.00 to 15.50
Valley	14.25 to 14.50

BUNDLED SHEETS

Buffalo	8.50 to 9.00
Cincinnati	9.00 to 9.50
Cleveland	11.50 to 12.00
Detroit	9.00 to 9.50
Eastern Pennsylvania	13.00 to 13.50
Pittsburgh	14.00 to 14.50
St. Louis	8.50 to 9.00
Valleys	12.00 to 12.25

SHEET CLIPPINGS, LOOSE

Chicago	8.00 to 8.50
Detroit	8.00 to 8.50

STEEL RAILS, SHORT

Birmingham	11.00 to 12.00
Detroit	13.00 to 13.50
Chicago	16.50 to 17.00
Cincinnati	15.50 to 16.00
Cleveland (over 6 ft.)	13.00 to 13.50
St. Louis	16.00 to 16.50

STOVE PLATE

Birmingham	14.00 to 15.00
Boston (consumers)	15.00 to 15.50
Buffalo	15.00 to 15.50
Chicago	15.00 to 15.50
Cincinnati (net tons)	8.50 to 9.00
Cleveland	13.25 to 13.50
Detroit (net ton) dealers	13.00 to 13.50
Eastern Pennsylvania	14.50
New York (dealers)	11.50 to 12.00
Pittsburgh	13.50 to 14.00
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo	17.50 to 18.00
Cincinnati	13.50 to 14.00
Eastern Pennsylvania	18.50 to 20.00
Pitts. billet and bloom crops	21.50 to 22.00

SHOVELING STEEL

Chicago	14.00 to 14.50
Pittsburgh	13.50 to 14.00
St. Louis	12.75 to 13.25

KNUCKLES, COUPLERS, SPRINGS

Chicago	18.00 to 18.50
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	19.50 to 20.00
St. Louis	17.00 to 17.50

FROGS, SWITCHES, GUARDS

Chicago	14.50 to 15.00
Eastern Pennsylvania	15.00 to 15.50
St. Louis	13.50 to 14.00

BOILER PLATE, CUT

St. Louis	7.50 to 8.00

ANGLE BARS—STEEL

Chicago	16.00 to 16.50
St. Louis	14.50 to 15.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston (dealers)	12.50 to 13.00
Buffalo	12.50 to 13.00
Cleveland, No. 1	11.50 to 12.00
Chicago, No. 1	14.50 to 15.00
Chicago, No. 2	14.50 to 15.00
Cincinnati, No. 1	10.50 to 11.00
Detroit, No. 2	13.50 to 14.00
Eastern Pennsylvania	17.50 to 18.00
New York, No. 1 (dealers)	15.00 to 15.50
Pittsburgh, No. 1	13.50 to 14.00
Pittsburgh, No. 2	16.50 to 17.00
St. Louis, No. 1	11.00 to 11.50
St. Louis, No. 2	12.75 to 13.25

WROUGHT PIPE

Boston (dealers)	9.50 to 10.00
Buffalo	11.00 to 12.00
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	11.25 to 11.75

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	16.00 to 17.00

CITY WROUGHT

New York, long	13.50 to 14.00

BUSHELING

Buffalo	12.50 to 13.50
Chicago, No. 1	12.00 to 12.50
Chicago, No. 2	8.25 to 8.75
Cincinnati, No. 1	9.00 to 9.50
Cleveland, No. 1	12.50 to 12.75
Cleveland, No. 2	10.00 to 10.50
Detroit, No. 1	11.50 to 12.00
Detroit, No. 1 (new)	10.50 to 11.00
Detroit, No. 2 (old)	9.00 to 9.50
Eastern Pennsylvania	14.00 to 14.50
Pittsburgh, No. 1.	13.50 to 14.00
St. Louis, No. 1	12.50 to 13.00

MACHINE SHOP TURNINGS

Birmingham	6.00 to 7.00
Boston (dealers)	7.00 to 7.50
Buffalo	10.00 to 10.50
Chicago	8.00 to 8.50
Cincinnati	8.50 to 9.00
Cleveland	12.75 to 13.25
Detroit (dealers)	10.25 to 10.75
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	8.50 to 9.00
Pittsburgh	13.00 to 13.25
St. Louis	6.50 to 7.00
Valleys	11.75 to 12.00

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	9.00 to 10.00
Boston (chemical)	8.50 to 9.00
Boston (dealers)	8.00 to 8.50
Buffalo	11.50 to 12.00
Chicago	10.50 to 11.00
Cincinnati	8.50 to 9.00
Cleveland	13.25 to 13.75
Detroit (dealers)	11.00 to 11.50
Eastern Pennsylvania (chem.)	14.50 to 15.00
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	8.50 to 9.00
Pittsburgh	13.50 to 14.00
St. Louis	9.25 to 9.75
Valleys	13.75 to 14.25

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	6.50 to 7.00
Cleveland	13.25 to 13.50
Detroit (dealers)	11.00 to 11.50
Eastern Pennsylvania	11.00 to 11.50
New York (dealers)	8.00 to 8.50

IRON AXLES

Birmingham	19.00 to 19.50
Boston (consumers)	31.00 to 32.00
Buffalo	25.00
Chicago	26.00 to 26.50
Cincinnati	19.50 to 20.00
St. Louis	25.00 to 25.50
New York (dealers)	23.00 to 24.00
Eastern Pennsylvania	21.50 to 22.50

IRON RAILS

Buffalo	19.00 to 20.00
Chicago	17.50 to 18.00
Cincinnati	11.50 to 12.00
St. Louis	10.50 to 11.00

PIPES AND FLUES

Chicago	9.50 to 10.00
Cincinnati	8.50 to 9.00
Cleveland	10.00 to 10.25
St. Louis	8.00 to 8.50

RAILROAD GRATE BARS

Buffalo	14.50 to 15.00
Chicago	15.50 to 16.00
Cleveland	13.75 to 14.00
Eastern Pennsylvania	14.50
New York (dealers)	12.50 to 13.00
St. Louis	14.00 to 14.50

FORGE FLASHINGS

Boston (dealers)	8.00 to 8.50
Buffalo	12.00 to 12.50
Chicago	9.50 to 10.00
Cleveland (under 10 in.)	11.50 to 12.00
Cleveland (over 10 in.)	9.50 to 10.00
Detroit (dealers)	9.50 to 10.00

FORGE SCRAP

Boston (dealers)	8.00 to 8.50
Chicago	17.50 to 18.00
Eastern Pennsylvania	13.00 to 13.50

ARCH BARS AND TRANSOMS

Chicago	19.00 to 19.50
St. Louis	18.00 to 18.50

ANGLE BARS—IRON

Chicago	17.50 to 18.00
St. Louis	17.00 to 17.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	14.50 to 15.00
Chicago	12.00 to 12.50
Cleveland	13.25 to 13.75
Eastern Pennsylvania	14.00 to 14.50
Pittsburgh,	15.50 to 16.00
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston (consumers)	19.00 to 20.00
Buffalo	19.00 to 20.00
Chicago	19.00 to 19.50
Cleveland	17.75 to 18.25
Eastern Pennsylvania	21.00 to 22.00
Pittsburgh	19.50 to 20.00
St. Louis	18.00 to 18.50

SHAFTING

Boston (consumers)	19.00 to 20.00
Chicago	19.50 to 20.00
Eastern Pennsylvania	22.00 to 24.00
New York (dealers)	17.00 to 17.50
St. Louis	19.00 to 19.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	15.00 to16.00
Birmingham, iron	15.00 to 15.50
Boston (consumers)	19.00 to 19.50
Buffalo	16.00 to 16.50
Chicago, iron	16.50 to 17.00
Cincinnati	11.00 to 11.50
Eastern Pennsylvania	17.50 to 18.00
New York iron (dealers)	14.50 to 15.00
Pittsburgh, iron	16.50 to 17.00
Pittsburgh, steel	19.50 to 20.00
St. Louis, iron	15.00 to 15.50

NO. 1 CAST SCRAP

Birmingham, cupola	15.00 to 16.00
Boston (consumers)	19.50 to 20.00
Buffalo	16.00 to 16.50
Chicago, No. 1 machinery	18.50 to 19.00
Cincinnati No. 1 machinery cupola (net tons)	16.00 to 16.50
Cleveland, cupola	19.00 to 19.50
Detroit (net tons) (dealers)	16.00 to 16.50
Eastern Pennsylvania, cupola	17.50 to 18.50
New York, cupola (dealers)	14.00 to 14.50
Pittsburgh, cupola	17.50 to 18.00
San Francisco	20.00
St. Louis, railroad	18.50 to 19.00
St. Louis, agricultural	18.50 to 19.00
Valleys	19.50 to 20.00

HEAVY CAST

Boston (consumers)	15.50 to 16.00
Buffalo (breakable)	15.00 to 15.50
Cleveland	12.25 to 12.50
Detroit (automobile) (net ton)	16.50 to 17.00
Eastern Pennsylvania	16.00
New Yorkk (dealers)	12.50 to 13.00
Pittsburgh	15.00 to 15.50

MALLEABLE

Boston (railroad)	18.00 to 18.50
Buffalo	17.00 to 17.50
Chicago, railroad	17.00 to 17.50
Chicago, agricultural	16.50 to 17.00
Cincinnati, agricultural	11.00 to 11.50
Cincinnati, railroad	14.50 to 15.00
Cleveland, agricultural	15.75 to 16.00
Cleveland, railroad	16.75 to 17.00
Detroit (dealers)	16.50 to 17.50
Eastern Pennsylvania, railroad	15.50 to 16.50
Pittsburgh, railroad	15.50 to 16.00
St. Louis, agricultural	13.00 to 13.50
St. Louis, railroad	13.25 to 13.75

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham, tram car	14.50 to 15.00
Boston (dealers)	12.00 to 13.00
Chicago	15.00 to 15.50
Cleveland	15.50 to 16.00
Detroit	13.00 to 13.50
Eastern Pennsylvania	17.00 to 17.50
New York (dealers)	14.00 to 14.50
Pittsburgh district	18.00 to 18.50
St. Louis	14.75 to 15.25

LOCOMOTIVE TIRES

Chicago	17.50 to 18.00
St. Louis	14.50 to 15.00

LOW PHOSPHORUS PUNCHINGS

Chicago	15.00 to 15.50
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	20.00 to 20.50